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ELECTROCARDIOGRAPHIC STUDIES OF EXPERIMENTAL MURINE (MEM) VIRUS MYOCARDITIS.

By E. R. TRETHEWIE AND E. L. FRENCH,[1]

Department of Physiology, University of Melbourne, and the Walter and Eliza Hall Institute, Melbourne.

AN outbreak of disease was observed in a colony of mice bred for experimental purposes, and when the brains of sick mice were passed to other mice no more than one day old, a virus producing encephalitis and myocarditis was isolated. This virus has been tentatively called murine encephalo-myocarditis virus or briefly MEM (French, 1954). The virus appears to be similar to, if not identical with, a virus isolated by Stanley, Dorman and Ponsford (1953) from the fæces of an Australian aboriginal child.

It is likely that the virus has been endemic in the Hall Institute mouse stocks for some time. One of us in 1944, during studies with antihistamine drugs (Trethewie, 1947) on mice from the same original stock, found liver lesions in untreated mice macroscopically similar to those found following infection of mice with MEM virus.

It was thought worth while to investigate the electrocardiographic changes in virus myocarditis in mice to determine if some assessment might be made of the electrocardiographic features of myocarditis, since the opportunity of autopsy studies was available to determine the accuracy of electrocardiographic techniques (Einthoven, Goldberger, Wilson, Trethewie).

Material and Methods.

Electrocardiograph.

Standard lead electrocardiograms were recorded from mice under ether anæsthesia. The fur was cut away with scissors, and clips were pinched through the skin, which had been covered by electrode jelly. Recordings were made on a Both electrocardiograph at full sensitivity. Leads A, B and C (Trethewie, 1951, 1953) were also recorded. Usually mice were sacrificed and submitted to autopsy immediately after electrocardiographic examination.

Histology.

Tissue was fixed in Carnoy's fluid and bedded in paraffin. Sections were stained with hæmatoxylin and eosin.

Findings.

Electrocardiographic Findings in Normal Suckling Mice.

In normal suckling mice the heart rhythm is regular, and in this small series (eight) it varied from 420 to 600 beats per minute. The *P* wave is upright in leads I and

[1] Technical assistance for this work was aided by a grant from the Australian National Health and Medical Research Council.

II, usually inverted in aVR and usually upright in the remainder of the leads. The voltage is small (approximately 0·06 millivolt or less). The *P–R* interval varies from 0·03 to 0·04 second. The *QRS* complex is fused in the latter part with the *T* wave, and the whole period occupies 0·03 to 0·04 second. Sometimes there is an affixed "step" which broadens the base and is probably part of the *T* wave; this is normal and usually evident in leads aVF, V_2 and V_5. In general these mice show some relative right heart preponderance, probably because they are very young. This latter finding is also true of young children.

Electrocardiographic tracings of leads A, B and C also show the above findings, the affixed "step" being more evident in lead B in this instance. Further, since the voltage recorded by these leads is greater than that of the standard leads, they are more valuable for work with mice, and the high potential of P_A normally makes measurement of the *P–R* interval easier (Figure I).

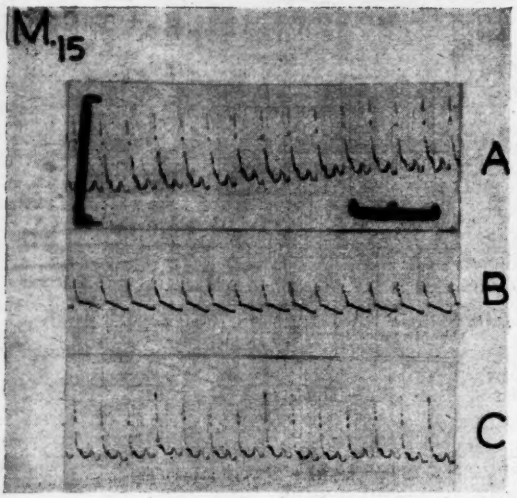

FIGURE I.

Electrocardiogram of normal mouse M15, ten days old, leads A, B and C. Note the normally prominent *P* wave in lead A. Potential in millivolts; time marker in fifths of a second.

Electrocardiographic Findings in Inoculated Mice.

Minimal Lesions.—Findings of minimal lesions are well illustrated in mouse M3, which had been inoculated with a small dose of virus eleven days previously, the mouse now being twelve days old. The electrocardiogram (Figure II) shows the rhythm to be regular, though there is a degree of bradycardia (rate 330 per minute). The *P* wave is small and the *PR* interval slightly lengthened (0·06 second). The *T* component of the ventricular complex is apparently normal, but one extrasystole is shown in lead aVL. Macroscopically the heart appeared a little dilated, but was otherwise normal. Histologically, however, some of the muscle fibres were slightly swollen, a little paler and beginning to lose cross-striation. One or two minimal collections of small round cells were seen associated with the altered muscle fibres (Figure III). These findings have not been observed in normal mice of this age.

Gross Lesions.—Gross lesions are well illustrated in mouse M10, which had been inoculated with a small dose of virus twenty-one days previously, the mouse now being twenty-two days old. The electrocardiogram (Figure IV) shows the rhythm to be regular but the rate slow (310 to 350 per minute). The small variation in rate to be observed in these tracings may be due to alterations in the depth of anæsthesia. The *P* wave is almost imperceptible except in the V and ABC leads. The *P–R* interval is slightly prolonged (0·05 second). The *QRS* complex is grossly broadened; in fact, it has the appearance of a monophasic infarct pattern. The *RST* segment and *T* wave are inverted in lead I and upright in lead III. There is an *R'SR"* in lead II which is probably pathological. Similar though less marked changes are found in the "augmented" and V leads, except in lead aVL, which shows a big *Q* wave. In the ABC leads there is a grossly broadened *QRS* complex with segment elevation in lead A and equally gross findings in lead C; in fact the segment elevation is still evident at the time of the appearance of the *P* wave (Figure V). This is undoubted evidence of a lesion of the AC type infarct pattern (Trethewie, 1953). In lead B there is a biphasic pattern also suggestive of an infarct though without segment elevation. Macroscopically the heart was enlarged and showed many white areas in the myocardium. Histologically these areas were composed of collections of small round cells with a few large macrophage cells and an occasional polymorphonuclear leucocyte. The muscle fibres in these areas showed varying degrees of degeneration (Figure VI). Every gradation from simple hyalinization to frank necrosis was observed.

Early Electrocardiographic Findings Following Inoculation of a Large Dose of Virus.—A dose of $10^5 LD_{50}$ was inoculated intraperitoneally into 18 one-day-old mice, and these developed the first recognizable symptoms after nine days.

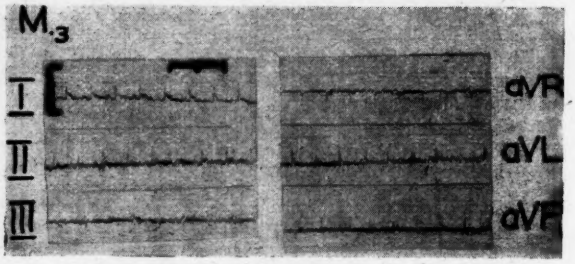

FIGURE II.

Electrocardiogram of mouse M3, twelve days old, inoculated eleven days previously with virus, leads I, II, III, aVR, aVL and aVF. Showing bradycardia (rate, 330 per minute), small *P* wave (normal), *P–R* interval (0·06 second), lengthened, extrasystole in lead aVL.

The electrocardiographic findings in one mouse (M20) five days after inoculation were as follows. The rhythm was regular but the rate was 430 to 470 per minute (Figure VII). The *P–R* interval was slightly lengthened (0·05 second). *ST* depression was noted in leads A and B, and slight irregular elevation was noted in lead aVL; the latter finding was possibly respiratory in origin. The changes are minimal but are suggestive of minor conduction involvement (*P–R* interval) and some slight toxic effect (*ST* depression).

Macroscopically and histologically the heart appeared normal. On the other hand all the remaining mice became sick at a later date; and when this is taken in conjunction with the fact that such a large inoculum was injected, it is reasonable to suppose that this mouse would also have developed pathological changes later.

Discussion.

In this work we have attempted to investigate virus myocarditis of the laboratory mouse from the point of view of the electrocardiograph. Myocardial changes have occasionally been described *post mortem* in human beings who have suffered from a variety of virus diseases, but as yet no convincing evidence has been brought forward to show that human myocarditis is the direct result of virus infection. The EMC group of viruses recognized since 1945 (Helwig and Schmidt, 1945; Warren, Smadel and Russ, 1949) produce an interstitial type of myocarditis in experimentally inoculated mice, but this virus produces in human beings only a mild febrile illness without known damage to the heart muscle. MEM virus is not neutralized by hyperimmune EMC antiserum (French, 1954). We have no evidence that MEM virus can infect man, other than the possibility suggested by Stanley, Dorman and Ponsford's (1953) finding of a related virus in the fæces of an

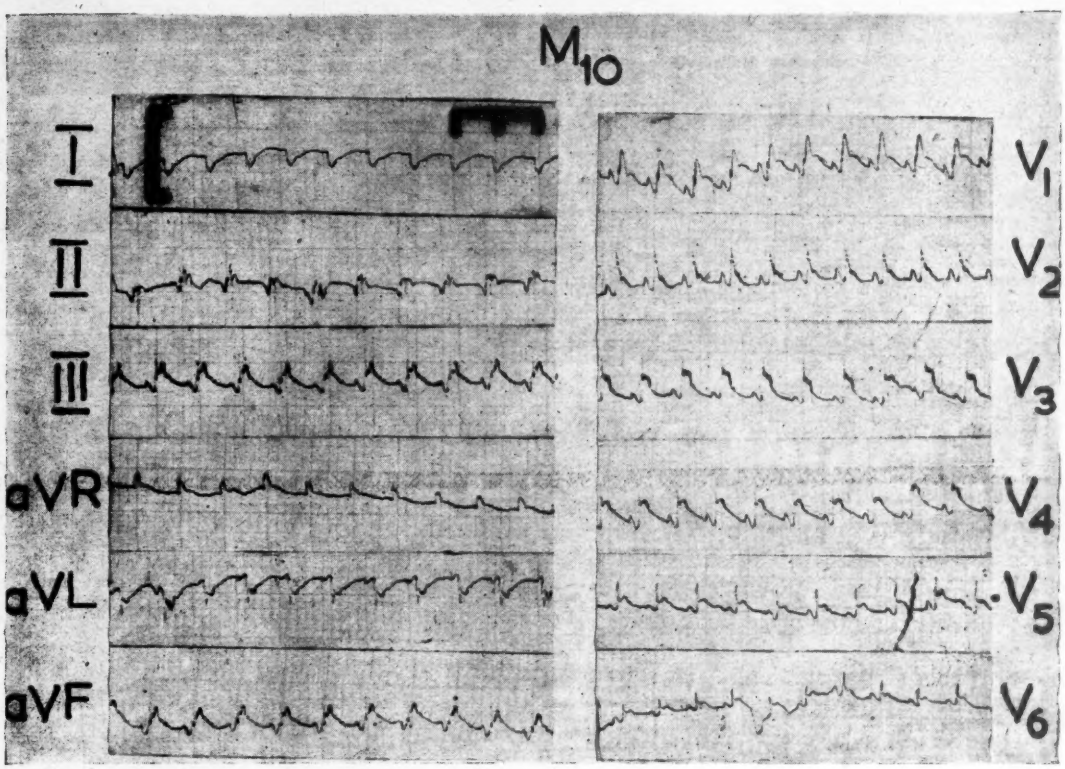

FIGURE IV.

Electrocardiogram of mouse M10, full display. Note bradycardia (rate 310 to 350 per minute). *P-R* interval slightly lengthened (0·05 second) and *QRS* complex grossly broadened—"infarct" pattern.

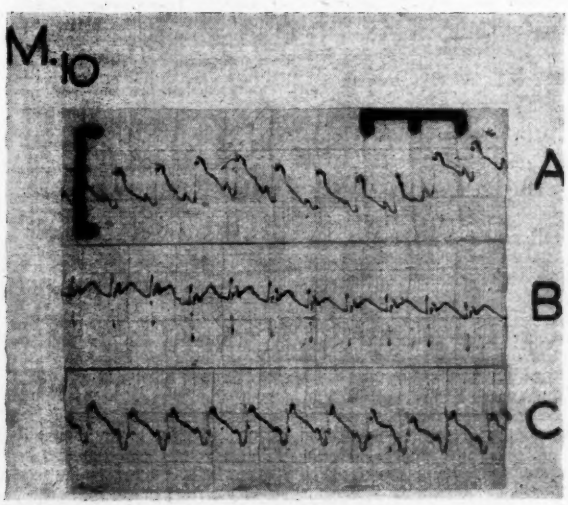

FIGURE V.

Electrocardiogram of mouse M10, ABC display. Note more evident infarct pattern (greater segment elevation) of "AC" type, biphasic contour of lead B and *P-R interval easy to read in lead A* (also in V leads, Figure IV).

Australian aboriginal child. There was no suggestion in this case that the virus was producing myocarditis in the patient.

The electrocardiographic findings presented here indicate involvement of conducting tissue with lengthened *P–R* interval and bradycardia, *ST* depression possibly toxic in origin and, in the more severe grade, typical infarct patterns. In man myocarditis may be associated with conduction changes and acute cardiac dilatation. *T* wave changes are described, more particularly in children. We would appear to have a valuable tool available for investigating fundamental electrocardiographic phenomena associated with virus myocarditis.

We have not yet established whether the myocardial lesion is produced directly by the virus or whether it is secondary. It is possible that some cases of myocardial infarction diagnosed clinically, in which the temperature and leucocyte responses are early (the latter being lymphocytic), and in which perhaps there is complete recovery without later vascular recurrences, are due in effect to virus infection. Our results are consistent with this viewpoint, in that in our mice inoculated with the virus, multiple necrotic areas yielding infarct patterns in the electrocardiogram were found.

When the electrocardiographic findings in our mice were marked, the mice were usually clinically ill, and the majority died within a few days. Even when the electrocardiographic changes were slight, the mice died eventually. In the absence of the electrocardiographic changes the mice always survived.

In view of the fact that we were able to examine the heart immediately after taking an electrocardiogram, we took the opportunity of recording the electrocardiogram, using leads A, B and C. If macroscopic necrotic lesions were found in the ventricular muscle, changes indicative of this type of lesion were always found in lead A, B or C. Such gross lesions also always produced evident abnormalities in some leads in the "full" display, I, II, III, aVR, aVL, aVF and V_{1-6}; but since here the voltage was in general lower, the changes were not quite so marked as in leads A, B and C. We found no advantages in using the

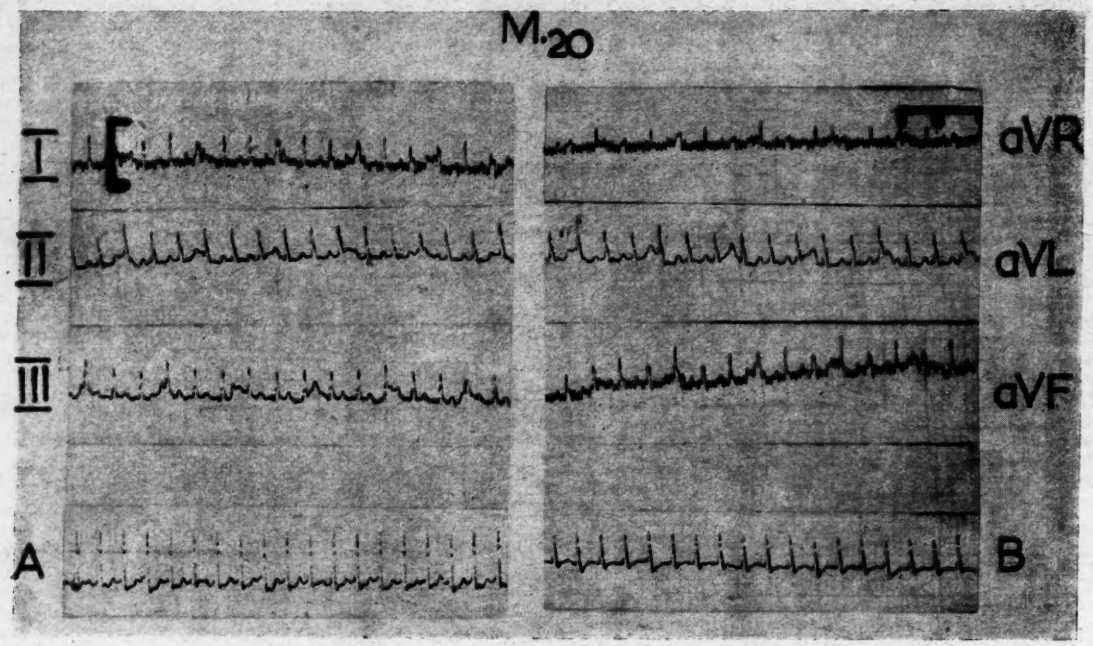

FIGURE VII.

Electrocardiogram of mouse M20, six days old, inoculated with virus five days previously, leads I, II, III, aVR, aVL, aVF and AB. Note slight bradycardia (rate 430 to 470 per minute) (symptoms developed in the group four days later), *P-R* interval slightly lengthened (0·05 second), *ST* depression in leads A and B, and slight irregular elevation in lead aVL (probably respiratory). Changes indicate minor conduction involvement and slight toxic effect.

full display in preference to the leads A, B and C. Where minor conduction changes were evident, the bradycardia was equally well seen in both tracings, and the *P–R* interval could be more readily recognized in lead A because of the relatively high voltage of P_A normally. This feature has been remarked on previously in human electrocardiography (Trethewie, 1953). In one instance (M20), in which the evidence was in favour of minor toxic damage, marked *ST* depression was observed in lead A and to a lesser degree in lead B, while less regular changes were noted in the usual display and then only in leads III and aVL.

Summary.

Electrocardiographic studies with standard leads and leads A, B and C were carried out on mice inoculated with MEM virus.

Autopsy studies were confirmatory of electrocardiographic findings; and in one instance, in which a large dose of inoculum was given, electrocardiographic changes were found at an early stage before histological findings were evident.

No more information of a pathological nature was obtained with the standard leads than with leads A, B and C, and, in general, changes with the latter were more evident and decisive.

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Legends to Illustrations.

FIGURE III.—Hæmatoxylin-eosin preparation of cardiac muscle of mouse M3. Note occasional muscle fibres slightly swollen and pale, with beginning loss of cross-striation, and one or two minimal collections of small round cells which are abnormal. (× 240.)

FIGURE VI.—Hæmatoxylin-eosin preparation of cardiac muscle of mouse M10. Note collections of small round cells with large macrophage cells and an occasional polymorphonuclear leucocyte. Fibres show every gradation from hyalinization to frank necrosis. (× 240.)

STONES IN THE COMMON BILE DUCT: THE ROLE OF OPERATIVE CHOLANGIOGRAPHY.

By E. S. R. HUGHES,
Melbourne.

THE most common cause of recurrent symptoms after cholecystectomy and choledochotomy for gall-stones is a stone in the common bile duct (Gray and Sharpe, 1944; McGowan, Keely and Henderson, 1947; Mirizzi, 1948; Millbourn, 1950; Hughes, to be published). Although it cannot be denied that such stones may have reformed in the common bile duct, evidence seems to be conclusive that most have been overlooked at the initial operation.

Evidence Indicating that Stones May be Overlooked.

The following evidence is adduced to suggest that stones in the common bile duct may be overlooked even after the duct has been opened.

Autopsy studies on patients who have died shortly after cholecystectomy with or without exploration of the common bile duct have demonstrated the occasional presence of stones in the duct. Over a period of years at the Royal Melbourne Hospital, 23 patients died after simple cholecystectomy, and at autopsy two were found to have stones in the common bile duct; stones were found in the duct

in six of 28 patients who died after cholecystectomy and choledochotomy.

Post-operative cholangiograms from 41 patients at the Royal Melbourne Hospital revealed persistent stones in the common bile duct in four instances. Corgg, Beyer and Gerston-Cohen (1952) have reported an incidence as high as 18%. Occasionally a radioopaque stone is demonstrated by plain films, and it is likely that intravenous cholangiography will add to the number of cases of radiologically proven stones remaining in the common bile duct after surgery has been completed.

When symptoms continue soon after the initial operation or recur shortly after, it is a reasonable inference that the stones have been overlooked rather than that they have reformed. In 17 of 36 cases studied at the Royal Melbourne Hospital the time interval was less than six months, and in 30 of the cases symptoms had returned in less than three years. Gray and Sharpe (1944) found that in nine of 11 cases symptoms had recurred less than a month after operation.

The Variation in Frequency of Exploration of the Common Bile Duct, and of the Recovery of Stones from it.

The common bile duct is opened more frequently in some clinics than in others, and the frequency of successful exploration is subject also to considerable variation. This serves to demonstrate that there is no uniformity of opinion amongst surgeons as to when the duct should be opened and explored, nor is there any agreement as to the most effective way to recover elusive stones from within the ducts.

If stones within the common bile duct could always be identified and recovered once the duct had been opened the problem would be simplified, because the additional procedure of choledochostomy does not increase the mortality and barely raises the morbidity or even the period in hospital. The patient most likely to return because of persistent symptoms is the one whose common bile duct has been opened and has had stones extracted from it.

Operative Cholangiography.

It is apparent that any method promising a greater degree of exactness in the identification of stones in the common bile duct should be welcomed by the surgeon. In view of the favourable reports which have appeared concerning operative cholangiography, a trial was undertaken. The technique used in this series and an analysis of the first 50 cases were published in the form of a preliminary report (Hughes and Kernutt, 1954).

Present Series of Operative Cholangiographic Examinations.

Operative cholangiography refers to the radiological examination of the common bile duct after the injection of a contrast medium during the course of operation. The procedure has been carried out in 100 cases; in 80 the examination was made as a routine procedure in the course of cholecystectomy for gall-stones; in 11 cases, operative cholangiography was performed during reexploration of the common bile duct, and in nine cases during miscellaneous procedures (operation for congenital absence of the gall-bladder, one; laparotomy for abdominal pain, one; operation for hydatid disease of the liver, one; operation for chronic pancreatitis, two; operation for obstructive jaundice due to malignant stenosis of the ducts, four) (Table I).

Technique of Operative Cholangiography.

A film taken shortly after the abdomen has been opened is referred to as a diagnostic operative cholangiogram; if the common bile duct is explored and stones are recovered, a further film can be taken to ensure that all stones have been removed, and this is referred to as a control operative cholangiogram.

"Pyelosil 35" (Glaxo) has been the solution used in most instances. In routine cholangiographic examinations the most satisfactory results followed the insertion of a ureteric catheter into the common bile duct through the cystic duct. If the gall-bladder has been previously removed, the common bile duct can be punctured anteriorly with a long needle and a direct injection made. A tunnel under the patient facilitates the insertion and removal of the casettes. In most cases the film was taken immediately after the injection of 10 to 15 cubic centimetres of contrast medium (Hughes and Kernutt, 1954).

Favourable Features of Operative Cholangiography.

With attention to detail and with experience, the whole procedure can be accomplished satisfactorily and without disturbance to the patient. A poor X-ray film from faulty technique becomes unusual.

TABLE I.

Operative Cholangiographic Examinations in Present Series.

Type of Operative Cholangiographic Examination.	Number of Cases.
Routine	80
Reexploration of common bile duct	11
Miscellaneous:	
Obstructive jaundice due to malignant disease	4
Chronic pancreatitis	2
Congenital abnormalities of biliary tract	1
Hydatid disease	1
Laparotomy	1
Total	100

Some interesting information has been obtained concerning the anatomical disposition of the common bile duct and pancreatic duct (Figure I), and this has been embodied in a separate paper (Hughes and Kernutt, 1954).

The procedure has directed special attention to the common bile duct, and this has undoubtedly been responsible for improvement in the results of exploration (Table II). Although this has been an unselected series, in the more complicated cases the patients tend to be treated in hospitals with radiological facilities.

TABLE II.

Operations for Gall-Stones and Explorations of the Common Bile Duct.[1]

Series.	Operations for Gall-stones.		Explorations of Common Bile Duct.	
	Total.	Percentage of Stones Recovered.	Percentage of Total Operations.	Percentage of Stones Recovered.
Royal Melbourne Hospital, 1947 to 1952	1203	13·5	25·3	53·5
Writer's series	250	13·2	22·0	60·0
Cholangiograms	80	23·8	33·8	70·4

[1] This table refers to operations for gall-stones, and excludes reoperations and operations for other conditions affecting the biliary tract.

In two of the cases in which routine diagnostic operative cholangiograms were taken, stones were detected which would probably have been overlooked. In one further case a stone was found in the course of a control operative cholangiographic examination and was removed. This means that in three cases the method undoubtedly enhanced the success of the operation.

Disappointing Features of Operative Cholangiography.

Operative cholangiography was of limited value in the 11 instances of reoperation on the common bile duct, and it was not a helpful procedure in the four cases of malignant obstruction.

The most disappointing feature of the procedure was the difficulty experienced in interpreting the films. It must be appreciated that stones do not always give the classical filling defect so often illustrated, but may occur in apparently normal ducts or in ducts that are a little dilated, or may prevent the medium from entering the duodenum (Figure II).

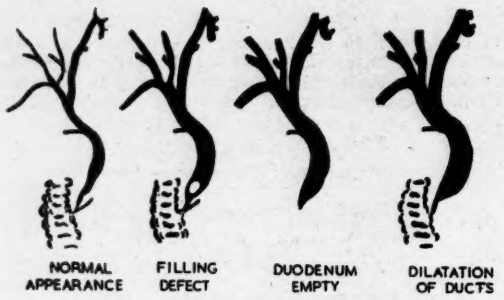

FIGURE II.

A stone may be present in association with any one of the four appearances shown.

In three cases the ducts were regarded as within normal limits from the appearances on both wet and dry films, and yet subsequent events showed that stones had apparently been overlooked. In one of these cases the duct was opened despite the films and a stone removed; in a second, recurrent biliary colic associated with transient jaundice troubled the patient for a month after the operation; and in the third, persistent symptoms resulted in an intravenous choledochographic examination, and on the second set of films taken the stone was disclosed as a well-defined and quite large filling defect. In four cases the X-ray films seemed to indicate the presence of a stone; but exploration revealed no stones, and the convalescence and subsequent history were smooth, which suggests that the X-ray appearances were in actual fact wrong and the filling defects were air-bubbles. In five cases the films were not sufficiently good to warrant a definite interpretation and the duct was explored. In all, the duct was explored in 27 instances with recovery of stones in 19.

Few surgeons will claim to have obtained much assistance from post-operative cholangiography. If a stone is discovered, attempts to dissolve it with ether or chloroform are not often successful. Therefore a control operative cholangiogram has the theoretical advantage that a stone disclosed can be removed at once. These control operative cholangiograms have been even more disappointing than the diagnostic films. In two cases a supraduodenal choledochotomy was combined with transduodenal exploration and sphincterotomy. A control operative cholangiogram failed to show anything entering the duodenum, despite the fact that the duodenal opening was large enough to admit a finger tip, and despite the ready flow of the medium in the subsequent post-operative cholangiographic examination.

Discussion.

The facts presented here show that stones in the common bile duct are overlooked from time to time, and it is possible that the frequency with which this occurs is greater than the surgeon realizes or wishes to recognize. It is not denied that stones may reform in the common bile duct. It is known that stones may be found in the common bile duct when the gall-bladder is congenitally absent (Latimer, Mendez and Hege, 1947). A surgeon may remove stones from the common bile duct, and a few months later find the same duct again packed with stones and biliary mud. Silk ligatures may form a nucleus for a new stone (Millbourn, 1950). The evidence for new stone formation is not strong and seems to apply to only a few cases.

Of the various procedures that have been suggested to lower the incidence of the "overlooked" stone, operative cholangiography has enjoyed considerable popularity in some clinics (Mallet Guy, 1952; Mirizzi, 1948; Hicken, McAlister, Franz and Crowden, 1950; McNeil Love, 1952); but from Australia, where there is a high incidence of gall-stones, no large-scale investigation has been reported. In the present series the procedure was responsible for focusing special attention on the common bile duct, and this was followed by a higher incidence of successful explorations.

However, operative cholangiography was proved disappointing for the same reasons by members of the Mayo Clinic (Waugh, Walters, Gray and Priestly, 1952) and by Best (1954); the films are susceptible to appreciable error in interpretation, particularly at the time of the operation. With the great improvement in pre-operative intravenous choledochography in the past year or two, it seems only a matter of time before diagnostic operative cholangiography becomes even less necessary.

In the present series the method was successful in disclosing stones in three patients, but was responsible for an interpretation which led to at least two patients leaving the operating table with stones still present within the common bile duct. Because of the difficulty of understanding these films no convincing information was considered available concerning hypotonic and hypertonic sphincters.

Whilst the results have been disheartening it is unwise to dismiss the procedure. It is unfair to any radiological procedure to ask too much of it; the evidence it provides should be considered along with other facts that are available, and action taken accordingly. Operative cholangiography employed in this way must then assume a useful position in the surgery of the common bile duct.

Conclusions.

Operative cholangiography is an investigation which causes no disturbance to the patient and minimal inconvenience to the surgeon. Films of satisfactory quality can be obtained in nearly every instance; but despite this the interpretation of the films remains uncertain. This has detracted from the value of the procedure; but if it is used in conjunction with other evidence suggestive of a stone in the common bile duct, it probably reduces slightly the possibility of overlooking a stone in the duct.

Summary.

1. Clinical, radiological and autopsy evidence is presented to show that stones may be overlooked in the common bile duct at the time of cholecystectomy.

2. The present indications for exploring the common bile duct are differently interpreted, and the efficiency of exploration also appears to be subject to variation. The problem is not only concerned with opening the common bile duct, but also with the best way to remove and recognize all the stones once the duct has been opened.

3. A series of 100 operative cholangiographic examinations has been completed, and of these 80 were undertaken as a routine investigation in the course of cholecystectomy for gall-stones.

4. The procedure provided some interesting anatomical information and directed special attention to the common bile duct. It was probably responsible for the discovery, in three cases, of stones which otherwise would have been overlooked.

5. Operative cholangiograms are difficult to interpret. "False negative" and "false positive" findings detract from the value of the procedure. Theoretically control operative cholangiograms are of greater value than post-operative cholangiograms in estimating the efficiency or otherwise of the exploration of the duct, but the same difficulty of interpretation is present.

Acknowledgement.

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by whose permission I was able to review the records of their patients.

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Legend to Illustration.

FIGURE I.—Operative cholangiogram demonstrating the pancreatic duct of Wirsung in typical anatomical relationship to the common bile duct.

THE INDICATIONS FOR INTRAVENOUS CHOLEDOCHOGRAPHY: PRELIMINARY REPORT.

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IN 1938, when Lahey reviewed the progress of surgery in the treatment of gall-stones, he firmly established the following principle: ". . . when a patient is operated upon for gall stones, all of the gall stones, including those in the ducts, should be removed." Furthermore, he stressed the frequency with which clinically unsuspected stones may be present in the duct system.

At the time when surgical attention was fixed on the gall-bladder, adequate pre-operative diagnosis could be made by oral cholecystography, and published figures have shown agreement between radiological and operative findings in 90% to 98% of cases (Morales and Swedberg, 1949). However, once the frequency of bile duct pathology was recognized, this means of diagnosis became inadequate, as it is not possible to demonstrate the bile ducts with certainty by this method. Because of the inability to obtain direct pre-operative evidence of choledocholithiasis, the decision to perform choledochotomy has depended upon either clinical evidence of biliary obstruction, often lacking, or upon the finding of indirect evidence of duct obstruction at operation. But it is now well recognized that stones may exist in the bile ducts without producing any evidence of their existence either clinically or at operation. Furthermore, even when exploratory choledochotomy is performed, stones may be missed. Thus, some means of directly demonstrating calculi in the bile ducts has been eagerly awaited.

Operative cholangiography has helped in this regard, but, for various reasons, is not entirely satisfactory (Hughes and Kernutt, 1954). Recently a reliable, non-operative method of demonstrating the bile ducts radiologically has been developed, depending on the excretion in the bile of the radio-opaque contrast medium, disodium-N-adipic-di-(3-amino-2:4:6-triiodophenylcarbonate), which is marketed as "Biligrafin" (Schering A.G., Berlin).

This paper is a report on the first 50 patients examined by this method at the Royal Melbourne Hospital between November, 1953, and August, 1954. The object of the paper is to study the information collected in this period with a view to deciding the type of case in which this examination will be of the greatest clinical assistance.

Nomenclature.

At present, complete agreement has not been reached as to the most suitable name for this examination. In the literature "intravenous cholangiography" is the most commonly used title (Hornykiewytsch and Stender, 1953; Berk *et alii*, 1954). However, in this hospital the name "intravenous choledochography" has been adopted to avoid confusion with operative and post-operative cholangiography, which were well-established procedures when the present examination was first introduced.

Principles of the Test.

After intravenous injection "Biligrafin" undergoes rapid excretion from the body in the bile and urine. In a normal person 90% of the medium passes into the bile and only 10% passes through the kidney. The concentration of "Biligrafin" in the bile is 30 to 100 times greater than in the blood and is sufficient to produce a shadow on a radiograph. Failure to obtain a choledochogram of diagnostic quality may be due to the following factors: (i) certain characteristics of the patient which militate against the production of a good radiograph—for example, obesity, inability to control respiration, or the presence of unusual quantities of bowel content after preparation; (ii) insufficient concentration of "Biligrafin" in the bile. The amount of "Biligrafin" excreted in the bile bears a reciprocal relationship to the amount excreted in the urine. When liver function is impaired, the major excretion of the dye is in the urine and an unsatisfactory choledochogram results. An obstructive lesion of the bile ducts, for example a stone, ultimately leads to impairment of liver function, and thus thwarts its demonstration by intravenous choledochography. The implications of this impasse will be discussed later.

Technique.

This paper is not concerned with details of technique. In general, the method employed was identical with that described in other reports in the literature (Gaebel and Teschendorf, 1953; Hornykiewytsch and Stender, 1953), and with the recommendations in the accompanying "Biligrafin" brochure.

A test dose of one cubic centimetre of "Biligrafin" was given in each case at least one hour before the main injection, which consisted in all cases of 40 cubic centimetres. Films were taken twenty, thirty and forty minutes after the injection and were immediately examined by a radiologist. According to the findings in these films and the clinical history of the patient, further films were taken. The examination lasted, on the average, for from two to three hours after injection, and in all cases an enema was given prior to its commencement.

Information Obtainable from Choledochography.

Provided liver function is not impaired, a shadow of the bile ducts is usually obtainable twenty minutes after injection, and persists in most cases for a further hour. The gall-bladder, if present, is best visualized about two hours after injection; but the process of filling may be studied in the earlier films. Contraction of the gall-bladder after a fatty meal may be observed, but the concentrating power of the gall-bladder is not shown by this technique.

A filling defect, in either the gall-bladder or the ducts, which maintains a constant relationship to the dye shadow in numerous projections, is accepted as direct evidence

of a stone. In some cases the gall-bladder does not fill with dye, even though a good duct shadow is obtained, and this has been accepted as indirect evidence of gall-stones. In these cases it is assumed that either a stone or inflammatory œdema blocks the cystic duct, although, theoretically, congenital absence of the gall-bladder could not be excluded.

In this series, although the emphasis has been placed on the detection of stones, numerous other observations were made. Because surgical interest has recently been directed towards obstructive lesions of the sphincter of Oddi (Starr, 1954), this region was studied carefully. The width of the common bile duct was measured in each case, and the time at which dye first appeared in the duodenum was noted. In two cases the pancreatic duct was seen filled with dye, but the significance of all these findings requires further investigation.

Indications.

Intravenous choledochography was requested for 36 patients whose gall-bladders had been removed and for 14 patients with the gall-bladder *in situ*.

In the post-cholecystectomy group, 33 patients presented with "post-cholecystectomy syndrome"—that is, with persistent or recurrent upper abdominal pain with or without jaundice. In five of these cases the serum bilirubin level was raised at the time of examination, being greater than one unit. In the three remaining cases in this group the indications were various. One patient presented with a post-operative biliary fistula. In another case intravenous choledochography was employed instead of routine post-operative cholangiography, the T-tube having become displaced. In one case the post-operative cholangiogram suggested choledocholithiasis, and intravenous choledochography was requested to confirm this finding.

Of those patients with the gall-bladder *in situ*, 11 presented with clinical evidence suggestive of common bile duct obstruction. Eight patients gave a history of jaundice, five having raised serum bilirubin levels at the time of examination. Obstruction was also suspected in two cases of proven pancreatitis. In three cases intravenous choledochography was employed when oral cholecystography had demonstrated non-filling of the gall-bladder.

Thus, in the whole series, 10 patients had raised serum bilirubin levels at the time of intravenous choledochography, four of these patients being clinically jaundiced. In five cases examination was performed on two occasions.

Findings.

Side effects following the intravenous injection of "Biligrafin" were minimal. Transient nausea, occasionally associated with vomiting, was not unusual, and the impression was gained that this was commoner in patients with impaired liver function. One patient, known to have chronic active hepatitis, suffered an exacerbation two days after injection, whilst in another patient, transient hoarseness of the voice developed. In no case was there a reaction to the test dose, and in future this will probably be dispensed with.

In 38 cases choledochograms of diagnostic quality were obtained, whilst in the remaining 12 cases either no shadow, or only a very faint shadow, was detected. Failure to obtain a choledochogram shadow was attributed, in the majority of cases, to impairment of liver function. Because of this, the correlation between the intensity of shadow obtained and the biochemical tests of liver function was studied. In only 16 cases in the series had liver function tests been performed at about the time of choledochography, and the findings in this group are shown in Table I.

The relationship of clinical jaundice *per se* to the intensity of the dye shadow could not be accurately assessed in this series, as only one moderately jaundiced and three slightly jaundiced patients were examined. Unsatisfactory shadows were obtained in each of these cases, and it appears that clinical jaundice precludes the use of intravenous choledochography. Unsatisfactory results were also obtained from at least five patients who were not clinically jaundiced. In these cases the result of the cephalin flocculation test (Hangar, 1939) correlated reasonably well with the intensity of the choledochogram shadow. In no case in which a strongly positive response to the cephalin flocculation test had been obtained was a dye shadow of the bile ducts produced.

Follow-up examination of the 12 patients whose choledochogram shadow was unsatisfactory revealed that of the seven cases in which diagnosis could be made later, by laparotomy or post-mortem examination, in no less than five were there lesions in the biliary tree. Three of these patients had calculi in the common bile duct and two were considered to have obstructive lesions in the sphincter of Oddi.

Of the 38 choledochograms of good diagnostic quality, 27 were considered to show the ducts and gall-bladder free of stones. In none of these cases has evidence arisen to disprove the result obtained, although the follow-up period has been only short.

Bile duct stones were demonstrated in six cases, and in five of these the findings have been confirmed at laparotomy; one patient has refused operation as she is free of symptoms. In one case of interest the presence of a residual stone had been suggested in a post-operative cholangiogram. After the T-tube had been removed, an intravenous choledochogram revealed the presence of six stones in the common bile duct, and this number was subsequently removed at laparotomy.

Evidence of cholelithiasis was obtained in seven cases, and its presence has been confirmed in the five patients who have as yet been operated upon. In three cases direct

TABLE I.

The Relationship between Liver Function Test Results and the Intensity of the Dye Shadow in Intravenous Choledochography.

Case Number.	Serum Bilirubin. (Units.)	Serum Proteins. (Grammes per 100 Cubic Centimetres.)		Serum Alkaline Phosphatase. (King-Armstrong Units.)	Cephalin Flocculation.	Choledochogram Shadow.[1]
		Albumin.	Globulin.			
2	0·4	5·0	1·8	11	−	D
4	3	4·5	3·1	—	+	N
14	1	4·0	2·6	10	−	D
16	8	3·6	2·9	27	−	N
17	56	3·4	3·0	48	+	N
18	1	4·5	2·4	10	+	N
20	0·5	4·4	3·9	45	−	D
21	0·2	5·2	3·0	—	+	N
22	0·2	5·3	2·9	25	−	D
23	1	4·5	2·6	6	+	N
25	6	3·5	3·5	35	+	N
26	3	—	—	33	−	D
37	0·4	3·8	2·3	90	+	N
46	2	3·9	3·1	4	−	D
49	3	4·0	2·7	37	−	D
50	6	4·1	2·1	41	+	N

[1] "D", choledochogram of diagnostic quality; "N", no shadow, or shadow of very poor density.

evidence of stones in the gall-bladder was obtained, and in two of these this finding was of particular interest, as the gall-bladder had previously failed to fill during oral cholecystography. In four cases cholelithiasis was diagnosed indirectly when the gall-bladder failed to fill in the presence of a duct shadow of good density.

Discussion.

Intravenous choledochography has its greatest immediate application in the investigation of patients with the post-cholecystectomy syndrome. For the examination to be satisfactory, it should be performed before impairment of liver function has occurred, and therefore such patients should be examined as soon as an abnormality in the bile ducts is suspected. However, if a patient first presents with evidence of disturbed liver function, and, in particular, if the patient is clinically jaundiced or the cephalin flocculation test result is strongly positive, then choledochography should be temporarily postponed. Calculus obstruction to the bile ducts is characteristically intermittent and corresponding fluctuations in liver function occur. If the assistance of choledochography is required in such a patient, then this should be undertaken during a remission. The following case from the series illustrates this point.

CASE 15.—A female patient, aged seventy years, had undergone cholecystectomy three years previously, and at that time a thick-walled gall-bladder containing no stones was removed. Choledochotomy yielded one calculus "1·5 cms. in diameter", from the lower end of the common bile duct. Recurrent epigastric pain had been experienced since operation, and the presence of a calculus was suspected. Intravenous choledochography was performed, but no dye was detected in the bile ducts; however, good opacification of the renal pelvis was obtained. Liver function tests were not performed in this case, but it is known that the patient was not clinically jaundiced at the time. Two months later the examination was repeated, and a shadow of diagnostic qualities was obtained. A calculus "three-quarters of an inch in diameter" was detected in the lower end of the common bile duct, and this was removed at subsequent laparotomy.

Thus, persistent or recurrent pain after cholecystectomy is an indication for immediate intravenous choledochography.

Because of the frequency of unsuspected choledocholithiasis in gall-bladder disease (Lahey, 16%) and the ease with which stones may be missed during choledochotomy, it seems a logical step to replace oral cholecystography entirely by intravenous choledochography. Quite apart from these advantages, there is another point in favour of such a change. In oral cholecystography the contrast medium is not introduced parenterally, and because of this the radiologist cannot be entirely confident that a non-filling gall-bladder is abnormal; the patient may have failed to take the tablets, or conditions in the alimentary tract may have prevented absorption. At present, the main objection to such a change is that choledochography is a far more time-consuming examination. Thus a compromise seems necessary, and the following procedure is suggested.

Preliminary examination should be performed by the oral method. Those patients in whom calculi are detected should be examined by the intravenous method prior to operation, in an attempt to detect calculi in the ducts. Also, those patients in whom non-filling of the gall-bladder occurs should be subjected to choledochography in order to confirm the presence of calculi, which are usually present in such circumstances. The only cases likely to be misdiagnosed by such a scheme would be those in the small group in which stones in the bile duct were associated with a gall-bladder free from stones; Lahey (1938) found this association in only 4% of patients operated upon for cholelithiasis.

In conclusion, to demonstrate the assistance which may be obtained from intravenous choledochography, the following case from the series is quoted:

CASE 14.—A female patient, aged thirty-five years, was admitted to hospital with an attack of acute cholecystitis which gradually subsided during the ensuing fortnight. At no stage was the patient clinically jaundiced, and the results of liver function tests were normal (see Table I). Intravenous choledochography was performed about one week after her admission, and a dye shadow of diagnostic quality was obtained. The common bile duct was considered to be normal in width, but contained three small filling defects typical of calculi. The gall-bladder did not fill with dye, which suggested indirectly that it also contained calculi.

Laparotomy was performed two weeks later, when the gall-bladder was found to be packed with small facetted calculi. The diameters of the cystic and common bile ducts were considered to be well within normal limits, and no definite stone was palpated in the ducts. Careful exploratory choledochotomy was performed, but no sign of stones was found. However, in view of the radiological findings the search was extended. Duodenotomy and sphincterotomy were performed, but again sounds could be passed into the duodenum without any evidence of stones being detected. Finally, after a long search and owing to the perseverance of the surgeon, three small facetted calculi were washed into the duodenum during irrigation. The patient made a good recovery, and post-operative cholangiography showed the bile ducts to be free of stones.

This case illustrates vividly several important facts in the clinical management of such patients. First, it shows that stones may exist in the common bile duct without producing any clinical evidence of obstruction or alteration in the results of biochemical tests. Secondly, it proves the now well accepted fact that stones may be present without producing any of the operative criteria on which exploration of the bile duct is usually based. Furthermore, it shows the ease with which stones may be missed, even when choledochotomy is performed. Finally, this case is a good illustration of the value of intravenous choledochography.

Summary.

1. The principles and technique of intravenous choledochography are described, as well as the information obtainable from this examination.

2. The indications for, and the information obtained from, choledochography in the first 50 patients examined by this method at the Royal Melbourne Hospital are analysed.

3. The examination is unsatisfactory in cases of impaired liver function, and it is concluded that the presence of clinically detectable jaundice or a strongly positive response to the cephalin flocculation test precludes its use.

4. The post-cholecystectomy syndrome offers the greatest field of application for choledochography, and provided that the examination is performed before impairment of liver function has occurred, valuable information may be obtained.

5. It is suggested that this method will replace oral cholecystography. However, because of the time-consuming nature of the test, a compromise is put forward.

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ESSENTIAL HYPERLIPÆMIA.

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SINCE the report of the first accepted case of essential hyperlipæmia by Bürger and Grütz in 1932, the clinical spectrum of the disease has progressively broadened.

Bürger and Grütz (1932) reported the case of a boy, aged four years, with hepatosplenomegaly and xanthomata. Other similar cases in children were then reported in increasing numbers (Opitz, 1935; Holt *et alii*, 1936; Franklin and Avery, 1937; Goodman *et alii*, 1940), while Bernhard (1936) described the first case in an adult. The features of these early cases were very similar: xanthomatosis, variable enlargement of the spleen and sometimes liver, abdominal pain, *lipæmia retinalis* in some cases, and in all hyperlipæmia due to an increase in the neutral fat content in the serum, which often appeared "milky" or "creamy". The serum cholesterol and phospholipid contents were occasionally elevated (Thannhauser, 1940).

The disease was first described in siblings by Holt and his colleagues (Holt *et alii*, 1936, 1939), and other reports of a familial incidence since then attest to the inherited nature of the anomaly, although the genetic mechanism involved is unknown (Levy, 1946; Harslof, 1948; Poulsen, 1950; Hetzel, 1951; Malmros *et alii*, 1954).

Although a distinction was drawn for some time between essential hyperlipæmia and the hyperlipæmia of *diabetes mellitus* and of pancreatitis (Thannhauser, 1940), there is now little doubt that both *diabetes mellitus* and pancreatitis may occur in essential hyperlipæmia, although the glycosuria may often be controlled by diet alone (Thannhauser, 1947; Lever *et alii*, 1945*a*). Speck (1865) first reported hyperlipæmia in association with acute pancreatitis, but it was not till nearly a century later that Poulsen (1950) showed that the hyperlipæmia was the cause and not the result of the pancreatitis. His observations were confirmed shortly afterwards by Klatskin and Gordon (1952).

More recently, Malmros *et alii* (1954) and Lever *et alii* (1954*a*) have reported the occurrence of tendon nodules and ischæmic heart disease in essential hyperlipæmia.

The number of reported cases is still small; recent reviews together list only some 60 accepted cases (Movitt *et alii*, 1951; Joyner, 1953; Malmros *et alii*, 1954; Lever *et alii*, 1954*a*). However, there are indications that essential hyperlipæmia is in fact much more common than has been supposed, and for this reason the present paper reports seven cases of hyperlipæmia which have been studied during the past three years in the Clinical Research Unit of the Walter and Eliza Hall Institute and the Royal Melbourne Hospital. These cases presented diverse clinical features, but in all the total serum lipid content was elevated at some stage of the disease to the region of 900 milligrammes or more per 100 millilitres in the presence of other evidence of essential hyperlipæmia, and it is considered that all represent different manifestations of essential hyperlipæmia.

[1] Working with the aid of a grant from the National Health and Medical Research Council of Australia.

Reports of Cases.

For convenience the clinical and laboratory features of the cases are considered apart from the lipid estimations, and are summarized in Tables I and II.

Clinical Features.

CASE I.—A., a female patient, aged sixty-three years, was referred for investigation of flatulent dyspepsia of twelve months' duration. Five months previously she had developed yellowish plaques on both upper eyelids. Her father had died of "fatty degeneration of the heart", and her mother of a stroke. Her four brothers were also dead, three of myocardial infarction and one of a stroke. One sister and her three children were alive and well.

On examination of the patient, the significant findings were xanthelasma of both upper eyelids and slight hepatomegaly, the liver edge being palpable one centimetre below the right costal margin. Her blood pressure was 170 millimetres of mercury, systolic, and 90 millimetres, diastolic. Investigation showed the presence of hyperlipæmia (Table III), and a diet of low fat content was prescribed, with lessening of her dyspepsia and regression of hepatomegaly.

CASE II.—B., a female patient, aged thirty years, was admitted to hospital with severe pain in the left upper quadrant of the abdomen radiating through to the back, and persistent vomiting. Ten weeks previously she had been delivered of a normal child after an uneventful pregnancy. There were no relevant findings in the family history.

Examination of the patient revealed signs of acute pancreatitis. No xanthelasma was present. Her blood pressure was 120 millimetres of mercury, systolic, and 80 millimetres, diastolic.

She responded rapidly to conservative treatment. Investigation showed "milky" serum and hyperlipæmia (Table III). A cholecystogram showed no evidence of cholecystitis. She has since remained well on a diet of low fat content.

CASE III.—C., a female patient, aged forty-six years, was admitted to hospital with mild infectious hepatitis. While she was in hospital her two children also developed jaundice, which laboratory tests showed to be due to viral hepatitis.

Examination of the patient revealed mild icterus, hepatosplenomegaly, and eruptive xanthomata (Figure I) on her nose and about her eyes. Her blood pressure was 135 milligrammes of mercury, systolic, and 90 millimetres, diastolic. Investigation confirmed the clinical diagnosis of viral hepatitis (Table II), and a moderate degree of hyperlipæmia (Table III) was present, even though the patient had been on a diet of low fat content for five weeks before the estimation was made.

Her further progress has been uneventful.

CASE IV.—D., a male patient, aged fifty-three years, was admitted to hospital for cholecystectomy. For five years he had had xanthelasma about both eyes. Three years previously he had two "strokes" with residual weakness in the left hand. For eighteen months he had had recurrent upper abdominal pains, which had lessened when he restricted his dietary fat intake. His father died of heart disease at the age of fifty-one years.

Examination of the patient revealed xanthelasma and moderate hepatomegaly. His blood pressure was 150 millimetres of mercury, systolic, and 80 millimetres, diastolic. Investigation showed hyperlipæmia (Table III) and cholelithiasis, and cholecystectomy was performed without incident. He has since remained well.

CASE V.—E., a female patient, aged fifty-one years, in 1937 developed mild *diabetes mellitus* not requiring insulin, obesity and diplopia. Investigation at that time revealed enlargement of the *sella turcica*. Three years later xanthelasma appeared on both upper eyelids. In 1950 she presented elsewhere with upper abdominal pain and obstructive jaundice; laparotomy revealed cholelithiasis and "malignant disease involving the liver and gall-bladder". No operative procedure was performed and no biopsy was taken for microscopic examination. However, her nutrition remained good, but the pain persisted, requiring morphine for its relief. Her grandmother had died of "gall-bladder trouble", and her mother of heart disease when aged sixty years.

Examination of the patient showed her to be obese, with xanthelasma of both upper eyelids (Figure II). Her blood pressure was 160 millimetres of mercury, systolic, and 100 millimetres, diastolic. Her liver was enlarged three centimetres below the right costal margin. Glycosuria was present. Investigation confirmed the presence of an enlargement of the *sella turcica* and of *diabetes mellitus*, and hyper-

lipæmia (Table III) was found. No evidence of malignant disease was obtained.

Treatment has been conservative, but only moderately satisfactory. The patient's abdominal pain is much less, but she does not keep to the diet prescribed for her. Glycosuria is still present, and she is becoming addicted to opiates.

CASE VI.—F., a telephonist, aged thirty-nine years, was admitted to hospital in *status anginosis* following cortisone

FIGURE I.

Eruptive xanthomata in a female patient, aged forty-four years, with essential hyperlipæmia (Case III).

therapy. Twelve years previously she had developed diplopia due to a left internal strabismus. This required surgical correction. For eight years she had painful nodules up to two centimetres in diameter on the tendons of the long muscles of the fingers, on both Achilles tendons and about the elbows. A biopsy of one of these showed it to be xanthomatous. Eight months before her admission to hospital she developed hypoglycæmic episodes, which were satisfactorily treated by dietetic adjustment. Her mother had died of cardiac asthma.

On examination of the patient, tendon nodules were present, but there were no cutaneous xanthomata. The liver was not palpable and the heart was not enlarged. Her blood pressure was 140 millimetres of mercury, systolic, and 80 millimetres, diastolic. Biochemical investigation confirmed the clinical diagnosis of essential hyperlipæmia (Table III).

Her cardiac pain was unaffected by prolonged medical treatment with a diet of low fat content and heparin administration, and she remained bedridden. A bilateral stellate sympathectomy was performed, but her pain was unrelieved and she developed electrocardiographic evidence of myocardial insufficiency. Left posterior rhizotomy of the second to sixth thoracic segments was then carried out, with relief of her pain and great increase in her exercise tolerance, so that she was no longer bedridden. However, the tendon nodules persist unchanged, and she still has considerable hyperlipæmia.

CASE VII.—G., a female patient, aged thirty-nine years, was referred for investigation of left-sided upper abdominal pain radiating through to the back and associated with fatty dyspepsia. These symptoms had been present for two years. For three months she had had cramps and paræsthesia in her arms and legs. She had borne three children, and each pregnancy was accompanied by persistent vomiting and some hyperplesia. Her weight was steady and her menses were regular. Her mother, grandmother and aunt had all died of heart disease.

Clinical examination of the patient revealed no abnormality. Her blood pressure was 180 millimetres of mercury, systolic, and 110 millimetres, diastolic. No xanthomata were noted. Investigation revealed hyperlipæmia (Table III), and treatment has been started with a diet of low fat content and pancreatic extracts by mouth. It is not yet possible to assess the results of therapy in this patient.

Laboratory Findings.

Apart from the elevation of the serum lipid content, laboratory investigation in essential hyperlipæmia reveals abnormalities which depend upon the secondary manifestations of the disease (see review by Joyner, 1953). In the present cases the pattern of laboratory investigation conformed with this. These results are summarized in Table II.

Blood Examination.—The only blood abnormality found was in a patient (Case II) admitted to hospital with acute pancreatitis, who had mild microcytic anæmia and a polymorphonuclear leucocytosis.

Erythrocyte Sedimentation Rate.—The erythrocyte sedimentation rate was elevated in three of the patients in whom it was measured. An increased erythrocyte sedimentation rate is a general finding in essential hyperlipæmia.

Hepatic Investigations.—There was no consistent abnormality in the results of liver function tests, although the result of the cephalin flocculation test was strongly positive in the patient with acute viral hepatitis (Case III).

Liver biopsy by the technique of King and Perry (1948) was performed on two patients (Cases III and IV). In Case III this confirmed the diagnosis of acute viral hepatitis, and in addition there was a diffuse fine fatty change in the cytoplasm of the parenchymal cells, but without the large fat droplets seen in malnutrition. Somewhat similar appearances in liver biopsies from patients with essential hyperlipæmia have been reported by Kozalka and Levin (1950), and by Movitt *et alii* (1951). The biopsy in Case IV showed no abnormality; this was obtained after the patient had been on a diet of low fat content for some

FIGURE II.

Xanthelasma palpebrarum in a female patient, aged fifty-one years, with essential hyperlipæmia (Case V).

months. In Klatskin and Gordon's case (1952) a liver biopsy gave normal findings. In one patient who came to autopsy, Thannhauser and Reinstein (1942) found no increased fat content of the liver by chemical methods.

Pancreatico-Biliary Disease.—The urinary diastase content was normal on all occasions on which it was estimated, but it was not possible to obtain specimens of urine during acute exacerbations of pancreatitis. However, the diagnosis of pancreatitis was proved at operation in Case V, and was considered extremely probable on clinical grounds in Case II. Three other patients may well have had pancreatitis, but the diagnosis could not be proved. Two patients presented no evidence of pancreatitis (Table I).

Cholecystography was undertaken in all cases, and revealed normal appearances in five of the seven cases. In Case IV cholelithiasis was demonstrated, while intravenous cholecystography in Case V produced good filling of the

TABLE I.

Clinical Features of Seven Cases of Essential Hyperlipæmia.

Case Number.	Sex.	Age. (Years.)	Family History.[1]				Clinical Findings.[1]								Other Findings.
							Xanthelasma.		Blood Pressure Systolic/ Diastolic. (Millimetres of Mercury.)	Hepatomegaly.	Splenomegaly.	Cholelithiasis.	Pancreatitis.	*Diabetes Mellitus.*	Cardiovascular Disease.	
			Cardiovascular Disease.	Gallstones.	*Diabetes Mellitus.*	Xanthelasma.	Skin.	Tendons.								
I	F.	63	+	−	−	−	+	−	170/90	+	−	−	−	−	−	
II	F.	30	−	−	−	−	−	−	120/80	−	−	−	+	−	−	Pancreatitis followed pregnancy.
III	F.	46	−	−	−	−	+	−	135/90	+	+	−	?	−	−	Acute viral hepatitis.
IV	M.	53	+	−	−	−	+	−	150/80	+	−	+	?	−	+	
V	F.	57	+	+	−	−	+	−	160/100	+	−	+	+	+	−	Enlarged pituitary fossa, ? pituitary, xanthoma. Weight, 218 pounds.
VI	F.	39	+	−	−	−	−	+	140/80	−	−	−	−	−	+	Diplopia, ? orbital deposits. Hypoglycæmic episodes.
VII	F.	39	+	−	−	−	−	−	180/110	−	−	−	?	−	−	

[1] "+", present; "−", absent; "?", unproven.

bile ducts but did not outline the gall-bladder. This patient was known to have had cholelithiasis in the past.

Examination of the gall-bladder removed at operation in Case IV revealed *cholecystitis glandularis proliferans*.

Gastric Investigations.—Although full gastric investigations were not performed in each case, no significant abnormality was demonstrated. Gastric biopsy (Wood *et alii*, 1949) showed superficial gastritis in Cases II and IV.

Carbohydrate Metabolism.—*Diabetes mellitus* was present in Case V, and hypoglycæmic episodes occurred in Case VI. In the other cases a glucose tolerance test revealed no abnormalities.

Cardio-vascular Investigations.—Clinical or laboratory evidence of vascular disease was obtained from two patients, one with *angina pectoris* (Case VI) and one with cerebral vascular disease (Case IV). In the remaining cases there was no demonstrable radiological enlargement of the heart or electrocardiographic evidence of myocardial disease.

A biopsy from a small artery was obtained at operation in Case VI; examination of this specimen revealed only slight medial thickening and minimal intimal deposit.

Other Investigations.—In Case V enlargement of the pituitary fossa was demonstrated radiologically. The cerebro-spinal fluid in this patient was normal.

A biopsy from a tendon nodule was secured in Case VI. This showed the classical xanthomatous appearance (Figure III).

The response to the Wassermann reaction was negative in all cases.

Lipid Studies.

It has not been possible to study in detail the various lipid fractions of the serum, and biochemical estimations have been confined to determinations of total serum lipid content and cholesterol content. All estimations have been made on fasting blood, the method of Kunkel *et alii* (1948) being used for total lipid content and that of

TABLE II.

Results of Biochemical Investigations in Seven Cases of Essential Hyperlipæmia.

Case Number.	Hæmoglobin Value. (Grammes *per Centum*.)	Leucocytes per Cubic Millimetre.	Erythrocyte Sedimentation Rate. (Millimetres in One Hour.)	Serum Bilirubin Content. (Milligrammes per 100 Millilitres.)	Cephalin Flocculation.	Serum Albumin Content. (Grammes *per Centum*.)	Serum Globulin Content. (Grammes *per Centum*.)	Serum γ Globulin Content. (Grammes *per Centum*.)	Serum Alkaline Phosphatase Content. (King-Armstrong Units.)	Blood Urea Content. (Milligrammes per 100 Millilitres.)	Prothrombin Efficiency. (Percentage.)	Urinary Diastase Content. (Units.)	Fasting Blood Sugar Content. (Milligrammes per 100 Millilitres.)
I	13·7	—	—	0·5	+	4·6	2·0	1·2	10	36	—	—	91
II	10·8	13	50	0·5	—	3·7	3·3	0·9	14	—	—	40	87
III	13·3	4	—	4·0	+++	4·2	2·3	—	45	—	68	33	100
IV	16·2	8	—	0·2	+	4·1	2·1	0·8	17	48	95	—	80
V	12·7	6	36	0·5	0	4·2	2·2	1·0	25	28	100	10	256
VI	13·3	10	5	0·2	+	5·4	2·1	1·2	14	36	100	—	60
VII	13·3	5	13	0·1	0	4·9	2·9	1·0	8	28	—	20	—

Sackett (1925) and Kenny (1952) for cholesterol. By these methods, the normal total serum lipid content is less than 650 milligrammes per 100 millilitres, and the normal serum cholesterol content less than 220 milligrammes per 100 millilitres. In addition the oral fat tolerance test previously described from this unit was performed in four cases (Althausen *et alii*, 1950; Saint and Weiden, 1952). The results of these investigations are shown in Tables III and IV.

TABLE III.

Total Serum Lipid and Cholesterol Determinations in Seven Cases of Essential Hyperlipæmia.

Case Number.	Date.	Total Serum Lipid Content. (Milligrammes per 100 Millilitres.)	Serum Cholesterol Content. (Milligrammes per 100 Millilitres.)	Remarks.
I	26. 5.52	790	318	Diet of low fat content.
	9.10.52	—	245	
	19. 1.53	1470	198	
	15. 2.54	780	300	
II	28. 4.54	>2000	380	Three months *post partum*.
III	6. 9.54	930	—	After two months on diet of low fat content.
IV	21. 1.53	880	144	After 18 months on diet of low fat content.
V	29. 5.53	1090	500	Patient would not restrict diet.
	10. 7.53	670	480	
	2.12.53	—	197	
	5. 5.54	680	180	
	1. 7.54	790	245	
	15. 9.54	850	270	
VI	21.12.53	1010	285	Lipids not affected by dietetic or heparin therapy. All estimations not included in table.
	17. 6.54	1220	200	
	3. 7.54	1270	340	
	8. 7.54	1120	335	
	16. 7.54	1030	345	
	22. 7.54	1220	305	
	29. 7.54	1200	315	
	28. 8.54	900	280	
	13. 9.54	995	335	
	4.10.54	1115	340	
	18.10.54	1160	300	
VII	14.10.54	1058	235	

Although each patient had hyperlipæmia at some stage of investigation, the noteworthy feature of these results is the great variation in both lipid and cholesterol contents found in three of the four cases in which serial estimations were performed. These appeared to occur spontaneously and bore little relation to therapy. In Cases I and IV there appeared to be a reciprocal relation between the cholesterol and total lipid contents.

The fat tolerance tests showed normal absorption of fat from the alimentary canal in the four cases in which they were employed. Thannhauser and Stanley (1949) obtained in essential hyperlipæmia similar results with I^{131} labelled fatty meals.

Discussion.

These patients between them showed all the recorded clinical features of essential hyperlipæmia except *lipæmia retinalis*, but the variations in symptoms and signs from case to case frequently made the diagnosis difficult. The important features of the disease upon which the clinical diagnosis rested in the present series were as follows: a suitable family history; xanthomatous deposits in the skin, tendons or other sites; hepatosplenomegaly; abdominal pain; pancreatitis; cholelithiasis; *diabetes mellitus*; and vascular disease affecting the heart or brain. A family history of frank essential hyperlipæmia was not seen, but evidence of cardiac or pancreatico-biliary disease or *diabetes mellitus* among relatives of the patient was common.

The pathogenesis of the abdominal pain is still uncertain in all cases. The pain is usually severe, frequently intermittent, and is felt by the patient in the upper part of the abdomen on either the right or left side. In the present series the pain was consistent with a diagnosis of pancreatitis in all the cases in which it occurred, and pancreatitis as a complication of essential hyperlipæmia has been reported by Collett and Kennedy (1948), by Poulsen (1950) and by Klatskin and Gordon (1952). It is of interest that in Case II the onset of acute pancreatitis occurred shortly after pregnancy, for the post-partum period is a frequent time for pancreatitis to become manifest in young women even in the absence of hyperlipæmia (Joske, 1955). However, in some cases of essential hyperlipæmia crises of severe abdominal pain have occurred without clinical, laboratory or operative evidence of pancreatic disease (Holt *et alii*, 1939; Goodman *et alii*, 1940; Bloomfield and Shenson, 1947); in these cases the pain has been attributed to rapid deposition of fat within the liver (Holt *et alii*, 1936, 1939).

TABLE IV.

Fat Absorption Tests after 10 Grammes of Butter given Orally to Four Patients with Essential Hyperlipæmia.

Case Number.	Total Serum Lipid Content. (Milligrammes per 100 Millilitres.)			
	Fasting.	Three Hours.	Four Hours.	Five Hours.
I	780	830	860	940
IV	880	920	—	1020
V	670	750	740	700
VI	1010	1065	1160	1120

This pain may be sufficiently severe to cause difficulty in the differential diagnosis of severe upper abdominal pain due to lesions such as perforated peptic ulcer which require surgical treatment. Nevertheless, if unnecessary laparotomies are to be avoided, it is necessary for both physician and surgeon to be aware of the possible diagnosis of essential hyperlipæmia in patients with severe abdominal pain which is not typical of the commoner surgical conditions.

The biochemical defect in essential hyperlipæmia is little understood. There is a constant hyperlipæmia which is due to an increase in the neutral fat content of the serum, and which in previously reported cases has been greatly influenced by the dietary fat content. The serum cholesterol and phospholipid contents may be increased or normal. The ratio of free cholesterol to cholesterol ester is usually within the normal range, and the ratio of cholesterol to phospholipid 1:1 or less (Malmros *et alii*, 1954).

More detailed studies of the plasma lipids by electrophoresis, plasma protein fractionation, ultracentrifugation and ether extraction have been reported recently by Lever *et alii* (1954*b*), and by Malmros *et alii* (1954). They found elevation of either the α_2 peak alone or both the α_2 and β_1 peaks, with a great increase in β_1 lipoprotein by fractionation. The β glycoproteins were moderately increased. Ultracentrifugation (18,000 revolutions per minute for one hour) resulted in considerable clearing of the plasma, and ether extraction decreased the neutral fat, cholesterol and phospholipid contents in the plasma. All the plasma lipids appear to be bound to protein, although this has been contested (van Eck *et alii*, 1952).

Physiologically the hyperlipæmia represents a retention hyperlipæmia (Thannhauser, 1947), in that there is a failure to remove from the blood-stream to the liver and fat depots neutral fat normally absorbed from the alimentary tract (Thannhauser and Stanley, 1949). The defects in the cellular enzymes which produce this result are unknown. Goodman *et alii* (1940) reported a case of essential hyperlipæmia in which no lipase was present in the blood, but subsequent reports have not shown this

finding to be present in all cases (Klatskin and Gordon, 1952).

In the present cases there was a great variation in plasma lipids when serial observation was possible. This bore little relation to therapy. Indeed, in Case VI, in which rigorous fat restriction in hospital was practised for four months, there was no significant change in the degree of hyperlipæmia. Further consequences of these spontaneous variations are that repeated estimations of serum lipids may be necessary to prove a suspected diagnosis of essential hyperlipæmia as in the present Case I, and that laboratory assessment of the efficacy of therapy must be very cautious. These variations also make difficult the distinction between essential hyperlipæmia and primary hypercholesterolæmic xanthomatosis, and it is possible that both represent different facets of the same condition. The distinction depended upon the finding in primary hypercholesterolæmic xanthomatosis of clear rather than cloudy serum, xanthelasma about the eyelids, frequent tendon involvement and arteriosclerosis, and a higher familial incidence. However, all these points have been observed in undoubted cases of essential hyperlipæmia (Holt *et alii*, 1939; Malmros *et alii*, 1954; Lever *et alii*, 1954*a*; present series).

Management.

The management of essential hyperlipæmia is at present dietetic, and a diet of low fat content is prescribed. In the majority of cases this results in lowering of the serum lipid content, though rarely to within normal limits. Secondary manifestations such as cholelithiasis, ischæmic heart disease and pancreatitis are treated symptomatically along established lines. A variety of hormones, enzymes and pancreatic extracts have been tried without effect by various authors.

Cortisone.

Cortisone and ACTH appear to be contraindicated. In Case VI of the present series cortisone therapy may have precipitated severe anginal pain, while Klatskin and Gordon (1952) found ACTH to increase the hyperlipæmia present in their case. Rich *et alii* (1951) found that pronounced lipæmia followed cortisone administration in rabbits, although in gravely ill patients ACTH may decrease the neutral fat of the serum, but with an increase of cholesterol and phospholipid (Aldersberg *et alii*, 1951).

Heparin.

Hahn (1943) showed that heparin abolishes *in vivo* alimentary lipæmia in dogs, and his findings were confirmed in man by Block *et alii* (1951). There has since been a considerable amount of investigation of the relation between heparin and fat metabolism. The clearing effect of heparin is shared by other anticoagulants and by heparin-like substances such as sulphonated polysaccharides (Waldron and Friedman, 1948; Brown *et alii*, 1952). The clearing action is not a simple one; recent reviews have been published by Lever *et alii* (1954*c*), by Bolinger *et alii* (1954), and by Herzstein *et alii* (1954). In atherosclerosis Graham *et alii* (1951) showed heparin to cause a reorientation of the lipoproteins of the serum, those with lower Sf[1] values increasing at the expense of those with higher Sf values. In essential hyperlipæmia the effects of heparin have been investigated by several groups of workers, and their findings are summarized in Table V. These results are variable, and no consistent pattern is apparent. It is noteworthy that no prolonged studies were made, the effects of only a single dose of heparin being studied.

Two of the present patients were treated with heparin. In Case V, no chemical effects were noted after the intravenous injection of 50 milligrammes of heparin. In Case VI, a prolonged course of twenty-one days' heparin therapy was given; this had no beneficial effect upon the patient's anginal pain, and no significant change in the serum lipids was observed (Figure IV). There is increasing evidence that heparin does not decrease the incidence of *angina pectoris* in other types of ischæmic heart disease (Chandler and Mann, 1953; Binder *et alii*, 1953); Block *et alii* (1951) found that the clearing action of heparin was less in atherosclerotic than in normal subjects.

[1] "Sf" refers to Svedbergs of flotation. 1 Sf unit = migration rate of 10^{-3} centimetres per second per dyne per gramme at 26° C. in a medium of sodium chloride solution of density 1·063.

TABLE V.

Reported Effects of Heparin in Essential Hyperlipæmia.

Authors.	Number of Cases.	Intravenous Dose of Heparin. (Milligrammes.)	Effects.	
			Clearing Action.	Chemical Action.
Klatskin and Gordon (1952)	1	50	"Perceptible decrease in turbidity."	Decrease in fatty acids of 5 milliequivalents per litre.
Van Eck *et alii* (1952)	2	50	"Perceptible decrease in turbidity."	
Joyner (1953)	1	5	40·2% clearing.	
Lever *et alii* (1954*c*)	6	50	Slight decrease in turbidity.	Decrease in neutral fat and electrophoretic changes in lipoprotein fractions.
	2	100		
Herzstein *et alii* (1954)	1	10	No noted clearing.	Fall in neutral fat ranging from 28·9% to 60·3%.
	1	25		
	1	100		
Malmros *et alii* (1954)	2	100	"Not pronounced."	

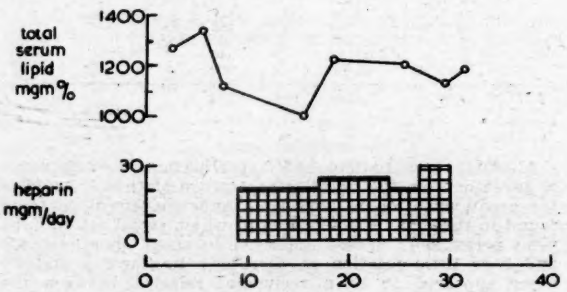

FIGURE IV.

The effect of prolonged heparin therapy in a patient with essential hyperlipæmia (Case VI). Despite concomitant restriction of the dietary fat intake, there is no significant alteration in the serum lipid level.

Summary.

1. The literature on essential hyperlipæmia is briefly reviewed and seven further cases are reported.

2. The patients comprised one male and six females, and their ages ranged from thirty to sixty-three years. The clinical features varied. Five patients had a family history of cardiac disease and one of cholelithiasis. Skin nodules were present in four patients and tendon nodules in one. Four patients had hepatomegaly and one splenomegaly, while five had pancreatitis and two cholelithiasis. Vascular disease was present in two patients, one of whom developed *status anginosis*. One patient had probable pituitary lesions and mild *diabetes mellitus*.

3. There was no consistent pattern in the results of laboratory investigations apart from an elevated erythrocyte sedimentation rate and persistent hyperlipæmia.

4. All patients had persistent hyperlipæmia, although the degree of hyperlipæmia varied greatly. Four patients also had hypercholesterolæmia.

5. Treatment by a diet of low fat content did not invariably reduce the blood lipid content. A prolonged course of heparin in one case of *status anginosis* affected neither the clinical nor the biochemical findings.

6. Essential hyperlipæmia is considered to be a genetically determined anomaly of metabolism, manifest by a family history of vascular disease, pancreatico-biliary disease or *diabetes mellitus*, with the clinical finding of some or all of xanthomata of skin or tendons, variable hepatosplenomegaly, pancreatitis, cholelithiasis, atherosclerosis and *diabetes mellitus*. Biochemical investigation shows persistent hyperlipæmia due to an increase of neutral fats and sometimes of cholesterol and phospholipids. Treatment at present is dietetic and symptomatic, but its efficacy is not certainly known.

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Legend to Illustration.

FIGURE III.—Section of a tendon nodule obtained by biopsy from a female patient with essential hyperlipæmia (Case VI). This shows the typical xanthomatous appearance. (Hæmatoxylin and eosin stain, × 180.)

Reports of Cases.

A CASE OF ABERRANT THYROID.

By W. MAXWELL,
Sydney.

To avoid possible confusion, as occurs in some standard works, aberrant thyroids are here referred to as those thyroid masses which occur laterally in the neck, and the term excludes accessory thyroids in the immediate vicinity of the gland, or those which appear along the course of the thyroglossal duct in the mid-line, and which are more appropriately designated ectopic thyroids.

Clinical Record.

A., a male patient, aged fifty-two years, consulted me on May 20, 1954, because of a swelling in the right upper part of the neck, which had been noticed for six weeks, and which caused "aching" pain. His neck was fairly massive—the type of neck which inconveniences the surgeon. In the upper posterior angle of the right carotid triangle there could be felt what appeared to be an enlarged lymph gland, freely mobile, and with possibly smaller glands surrounding it. At first it was thought that a smaller gland in a corresponding position on the left side was palpable—a common error made by students; but on closer scrutiny this was found to be the bulge at the bifurcation of the common carotid artery. A similar pulsating bulge could be defined on the right side immediately anterior to what was taken to be enlarged lymph glands.

The patient was a pale man; there was no evidence of a primary causative infection, or of a primary skin neoplasm; the thyroid was not palpable; the buccal cavity, fauces, post-nasal space and pharynx were normal on visual examination and digital palpation. There were no symptoms of laryngeal involvement; palpation of all glandular areas, liver, and spleen revealed no abnormality.

Because of his pallor a provisional diagnosis of Hodgkin's disease was made, and he was referred to Dr. Richmond Jeremy. However, the blood picture was normal, and he was referred back to me for removal and biopsy of the swelling.

At operation on June 16 the mass proved to be deep to the internal jugular vein, a segment of which was removed, and was a single encapsulated swelling the size of a large marble with the flaked brown-amber colour of a small colloid carcinoma of the breast. It felt solid and was removed. On palpation in the resultant cavity, no enlarged glands were palpable. The mass was incised and found to be tensely cystic containing dark brown fluid. On its posterior internal surface there was a flooring of thickened tissue of a brown colour with an undulating unbroken surface.

Possible diagnoses considered at operation were secondary melanoma, early branchial carcinoma, and secondary thyroid carcinoma.

Dr. A. H. Tebbutt reported as follows (see Figure I):

> Appearances are that of papillary adenoma of the thyroid with no histological evidence of malignancy. There appeared to be a very small area of lymphoid tissue which may or may not be a small residual part of a gland invaded by the tumour.

Though we were aware that the tumour was likely to be metastatic, and that this type of malignant thyroid tumour is generally radio-resistant, the patient was given a course of deep X-ray therapy to the operation area by Dr. C. M. de Monchaux.

On August 15 the skin reaction was mild, and once this had subsided, the whole of the homolateral (right) lobe of the thyroid was removed. It may be argued that it would have been better to remove all glands of the neck at the same time, and that examination of a frozen section at the time of the removal of the metastatized lymph gland (the patient was in a private hospital, but this examination was available with a little delay) would have shown the desirability of removing thyroid and all glands at the primary operation. I agree with this view; but in this country no surgeon has had much experience of this condition. The lobe of the thyroid appeared normal, and was sent intact to Dr. Tebbutt, who reported as follows:

> The lobe was not enlarged. Incisions show the gland to have a normal appearance except for a small grey area toward the upper lateral aspect, and a still smaller grey area toward the lower medial aspect. These were both sectioned and they are small papillary adenomas, circumscribed, but not completely encapsulated; and there is some evidence of proliferation outward at the margins. But the cytology is not malignant, and I would not have expected metastases. But as metastasis has apparently occurred one must conclude that in this case the thyroid tumours were in this sense malignant.

FIGURE I.
Photograph of cyst with superficial surface removed (× 10).

I admire the care taken by Dr. Tebbutt to demonstrate these very small tumours. (See Figures II and III.)

At this period I talked of the case with Sir James Learmonth, who encouraged my intentions with Caledonian brevity: "Block dissection."

On October 13 a complete block resection was performed of all the glands in the right anterior and posterior triangles, together with the sterno-mastoid and the internal jugular vein, commencing at the clavicle below and including the infrahyoid muscles. This is sometimes called Crile's dissection, and an excellent description of the operation was published by the late Frank Lahey in 1951. Care was needed because of a tangled mass of fibrous tissue where the hypoglossal nerve lies for a short distance below the posterior belly of the digastric nerve, to avoid injury to the nerve. I had no hesitation in removing the accessory nerve with the sterno-mastoid, as from experience I knew that the trapezius received adequate innervation from the third and fourth cervical nerves.

In the resected mass Dr. Tebbutt could find no glands except in the fibrous mass already mentioned above and

lateral to the carotid bifurcation. (This mass was considered to be due to the original removal of the metastasis.) His report on this area was as follows:

> This consists of fibrous tissue, fat, and muscle, in which are many small lymph nodes, and one of these contains a very small area of thyroid acini not showing the structure of papillary adenoma and not looking malignant. But I suppose this is a metastasis if the other one was.

FIGURE III.

Section of lobe in coronal plane, but with a small hinge of tissue left. Thus the suture marks the upper pole; but as the lobe was swung downward on the hinge, it is possible to see two small tumours bisected above the hinge, while below the hinge can be seen the areas removed from the other halves of the tumours for biopsy (×2).

Comment.

A considerable amount of literature is growing up about types of thyroid tumours similar to the one reported. Here we have the following: (*a*) two cytologically innocent tumours of a thyroid lobe; (*b*) one metastasis of innocent papillary adenomatous structure (homolateral); (*c*) another metastasis with the cytological appearance of normal thyroid tissue (also homolateral). This is theoretically bewildering, but it occurs. After a search of much literature I feel that in a case report such as this the position is well summed up by Richard Cattell (1951). He reports 52 cases of thyroid carcinoma in five years, and eight of these were of the "papillary cystadenoma, malignant" type. He says of these latter that the diagnosis was usually made by biopsy of a cervical node or by microscopic examination of a discrete adenoma (of the thyroid itself). He states further that the group of papillary tumours must all be considered malignant, and that though the condition may be extremely slowly progressive, the indication seems clear for a neck dissection in all cases. He adds that Warren and Feldman (1948), in reviewing the Lahey Clinic patients, found the homologous lobe of the thyroid involved in over 90% of cases of papillary cystadenoma, which probably indicated their origin from the median *Anlage* of the thyroid; that is, they considered the tumour to be a definite carcinoma of the thyroid with metastases to the lateral cervical nodes. Cattell considers that such a theory will not explain all cases, but concurs with the opinion of Warren and Feldman that most of the lateral papillary tumours are metastases.

Conclusion.

This case is recorded briefly because of its rarity, and from a general interest among surgeons and others in this subject. It is not intended to stimulate controversy, but may lead to helpful views on the subject which you may care to publish.

Acknowledgements.

I am deeply indebted to Dr. A. H. Tebbutt for his usual skill and care in the preparation and interpretation of specimens and slides, and also to Sister M. Regius, of the Department of Clinical Photography at Saint Vincent's Hospital, Sydney, who prepared all the illustrations for this report.

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Legends to Illustrations.

FIGURE II.—Photomicrograph of section of cyst wall.

FIGURE IV.—Photomicrograph of the area from which biopsies were taken.

FIGURE V.—Photomicrograph.

MALIGNANT LEIOMYOMA OF THE SMALL INTESTINE.

By DANIEL LANE, M.B., F.R.C.S. (Edinburgh), F.R.C.S. (England), F.R.A.C.S.,

Brisbane.

LEIOMYOMATA are not as uncommon as many text-books suggest; but a malignant leiomyoma (or leiomyosarcoma) which has caused peritonitis is a most unusual form of "acute abdomen", and for this reason I have elected to describe a case which I encountered recently.

Clinical Record.

Mrs. A., aged seventy-five years, was admitted to hospital on February 3, 1953, in a state of shock. She gave a history of sudden onset of abdominal pain ten hours previously. The pain was situated mainly in the epigastrium, but radiated through to the right side of the back. She had vomited on several occasions.

Examination revealed her to be an old woman suffering from shock, with generalized abdominal rigidity and considerable tenderness in the pouch of Douglas on rectal examination.

A provisional diagnosis of perforated peptic ulcer was made.

Laparotomy revealed blood-stained free peritoneal fluid of unpleasant odour. An enormous nodular vascular tumour was found in the ileal mesentery, firmly attached to the mesenteric border of the bowel. This tumour was the

site of hæmorrhage, and it appeared to be infected. The tumour was eventually dissected free from the bowel and mesentery, opening of the bowel being required.

The patient made a surprisingly uneventful recovery. At the present time[1] her general health is beginning to deteriorate and she has evidence of a recurrent abdominal mass.

The pathological examination was carried out by Dr. Charles Ross, and his findings were as follows.

On macroscopic examination, the specimen (Figure I) was seen to consist of a soft, lobulated, yellowish tumour, measuring 18 by 19 by 6 centimetres, and covered by a thin membrane in which there were many dilated veins. A particularly large lobule projected from one side; it measured 9 by 6 by 4 centimetres and was separated by a deep groove from the rest of the tumour. In the depths of the groove there was a small sheet of tissue 12 by 3 millimetres in area, apparently intestinal mucosa. When the tumour was cut, it was found to consist of greyish-yellow tissue with much necrosis and a good deal of hæmorrhage, and it had an unpleasant odour.

FIGURE I.

The lobulated nature of the tumour is well shown, and the arrow indicates the groove in which small intestinal tissue was found continuous with the tumour.

Microscopic examination of sections from various parts of the growth showed it to be a malignant leiomyoma with varying degrees of differentiation, from recognizable smooth muscle to a quite anaplastic structure (Figures II and III). There was much necrosis, and areas of acute inflammation were seen in which were numerous Gram-positive bacilli of clostridial appearance and small numbers of short-chained streptococci. Examination of a section through the groove showed chronically inflamed small intestine, the muscularis of which was continuous with the growth, though in places it was separated from it by a band of fibrous tissue.

[1] November, 1954.

Dr. Ross gave it as his opinion that the tumour appeared to have originated in the bowel wall.

Discussion.

I have purposely used the term "malignant leiomyoma" in preference to "leiomyosarcoma", because the term "sarcoma" implies a high degree of malignancy which is not a characteristic of these tumours.

However, one can never be entirely certain that any leiomyoma is necessarily benign, except the small intramural tumours which are chance findings at autopsy or operation.

I will now review some of the chief features of leiomyomata of the small intestine, with special reference to the malignant types.

Ætiology.

The ætiology is still rather obscure, but it seems that these tumours arise in the muscularis of the gastro-intestinal tract. This was demonstrated in the case described.

Incidence.

Golden and Stout (1941), in their classical work, have shown that there is no demonstrable difference in incidence based on sex, race or geography. I ngeneral, 60% of these tumours occur in persons aged between forty and sixty years, while 20% occur in persons aged under forty years and 20% in persons aged over sixty years. The average age is about forty-seven years. In Golden and Stout's series of 1018 cases, the youngest subject was aged two years and the oldest eighty-one years.

In the small intestine 80% of tumours occur with equal frequency in the ileum and jejunum, while 20% occur in the duodenum.

Pathology.

In the gastro-intestinal tract both benign and malignant tumours are firm, well defined, rounded or lobulated masses, usually sessile but often pedunculated. Their size varies considerably, from minute tumours five millimetres in diameter to the enormous type such as the one described. They are sharply circumscribed, but on microscopic examination a definite capsule is seldom seen. In the case discussed the peritoneum formed a "capsule" over a major part of the tumour. The cut surface usually presents a greyish-pink whorled appearance not unlike a fibroid uterine tumour.

Owing to the relative avascularity of the tumour, necrosis and inflammatory changes including hæmorrhage are not uncommon. This was well demonstrated in the tumour removed.

It is very uncommon for such neoplasms to become necrotic or infected and perforate into the peritoneal cavity with a resultant generalized peritonitis. However, in the case described above, the degree of peritonitis was most severe.

Microscopically these tumours are similar to smooth-muscle tumours in other parts of the body, with a few interesting variations.

A rather striking feature is the tendency for the cells to be aligned in palisade formation. It is understandable that they were originally confused with neurilemmomata.

This group of smooth-muscle tumours differs from those in the uterus and subcutaneous tissues by the fact that they are not encapsulated, but their cells and fibres interdigitate with uninvolved tissue at the periphery. This must not lead one to diagnose malignancy, as it is a very common feature of these tumours—even the small benign intramural tumours found by chance at autopsy or operation. This lack of encapsulation is of aid in differentiating the leiomyoma from the neurilemmoma, for the latter is always an encapsulated tumour.

As in uterine leiomyomata, the size and shape of the cells is not necessarily a criterion of relative malignancy. A malignant leiomyoma may be composed of cells which

show few differences from normal smooth-muscle cells. On the other hand, some tumours in which bizarre cells are formed may not be clinically malignant.

Golden and Stout suggest that in such cases the formation of bizarre cells is an indication of degeneration rather than of hyperactivity. This provides an interesting feature of the case presented, as there were many bizarre cells, yet the progress of the patient suggests a relatively low grade degree of malignancy.

Clinical Features.

Generally these tumours are discovered either by accident or in the course of investigation for some symptom such as persistent intestinal hæmorrhage.

Because many of these tumours tend to grow in an exoenteric fashion, a large proportion can be palpated. Prior to the onset of peritonitis it should have been easy to palpate the tumour discussed.

Whenever an unusual form of mobile abdominal tumour is found on clinical examination, especially if melæna has been present, the possibility of leiomyoma should be considered.

Treatment.

Surgical removal is the best form of treatment. The presence of metastases, unless widespread, is no contraindication to surgery. Whenever possible the tumour should be excised with a generous margin even if it is benign in appearance, as its limits of extension are only apparent and it is never truly encapsulated. This is a criticism of the treatment which my patient received; but under the circumstances and in view of her age, it was thought better not to prolong the operation unduly by more radical surgery involving bowel resection.

Prognosis.

Provided adequate removal can be performed, the outlook is very good when the tumour is benign.

The malignant leiomyoma is usually of low-grade malignancy, and if adequately treated even in the presence of metastases, the patient may enjoy many years of uneventful health.

Most of these tumours appear to be less malignant than the majority of cancers, and if recognized early enough and treated properly they usually offer at least a fair prognosis.

Summary.

A case of malignant leiomyoma of the small intestine causing peritonitis is reported.

This is an unusual type of acute abdominal emergency, especially in an old patient.

These tumours can grow to very large dimensions and are liable to various complications.

A complete capsule is never present, and thus resection must be adequate.

These tumours have a low grade degree of malignancy, and thus removal should be performed whenever possible even in the presence of metastases.

Acknowledgements.

I am deeply grateful for the assistance of my former colleague, Dr. Charles Ross, of the Woking and Chertsey Group Laboratory, England. My thanks are also due to Mr. E. W. Hollywood, of the University of Queensland Medical School, for his excellent photomicrographs.

Reference.

GOLDEN, T., and STOUT, A. P. (1941), "Smooth Muscle Tumours of the Gastrointestinal Tract and Retroperitoneal Tissues", *Surg., Gynec. & Obst.*, 73: 784.

Legends to Illustrations.

FIGURE II.—An area of considerable anaplasia (× 300).

FIGURE III.—Recognizable smooth muscle together with tumour cells (× 300).

Reviews.

Time Distortion in Hypnosis: An Experimental and Clinical Investigation. By Linn F. Cooper, M.D., and Milton H. Erickson, M.A., M.D., with a foreword by Harold Rosen, M.D.; 1954. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9″ × 6¼″, pp. 200, with eight text figures. Price: 43s.

IN this book the authors have made some interesting observations.

The first half of the book describes experimental studies of time distortion under hypnosis, showing various ways in which this distortion can be demonstrated. The second half is stated to be clinical and therapeutic in its application and consists mainly of a number of case histories.

There is an interesting dissertation on "Time", its measurement, description and sense of appreciation—world time, objective; "seeming" time, subjective; clock time, a means of comparison of two periods. Time distortion can occur during boredom, dreams and hypnosis, and in an acute anxiety episode.

The authors state that, apart from the time taken in training the subjects in hypnosis, a further period of some three to twenty hours is required to develop the sense of time distortion. Success apparently requires a high degree of withdrawal into the hallucinatory world and a lack of awareness of the surroundings as such. They state that "a casual approach is certain to lead to disappointment".

A successful subject apparently in a few seconds experiences and can describe events which would in reality take perhaps half an hour or an hour to pass. It is not surprising that selected and highly trained persons can produce unusual subjective experiences under hypnosis.

One cannot fail to notice the great deal of repetition in these experiments which would be of limited interest to the average reader.

The authors may be congratulated upon their industry, but they cannot expect many to share their enthusiasm. There are some interesting thoughts in the book which would be more interesting if the authors had exercised some selectivity in its compilation.

The Practice of Mental Nursing. By May Houliston, R.G.N., R.M.N., R.F.N., with a foreword by P. K. McCowan, J.P., M.D. (Edin.), F.R.C.P. (London), D.P.M., Barrister-at-Law; Second Edition; 1955. Edinburgh and London: E. and S. Livingstone, Limited. 7¼″ × 5″, pp. 176. Price: 7s. 6d.

THE first edition of this book was favourably reviewed in this journal in 1947, and it was recommended for reading by those engaged in mental nursing and by those who teach them. The good features of the book remain in this second edition, although it lacks certain information that might perhaps have been expected if the book is to be regarded as up to date. More particularly, there is no reference, other than a brief mention in the historical survey, to modern methods of treatment such as psychosurgery and shock therapy. While the nursing care of patients undergoing such forms of treatment will largely be learnt in the wards, an account of the practice of mental nursing is incomplete without some discussion of what a nurse is to expect and what is expected of her in these new and important fields. However, the general features of a mental nurse's duties are carefully and simply set out. A brief but sufficient background is provided of the nature and features of mental disorders, but the bulk of the book is devoted to a practical exposition of its stated subject.

Anatomy: Regional and Applied. By R. J. Last, M.B., B.S. (Adelaide), F.R.C.S.; 1954. London: J. and A. Churchill, Limited. 10″ × 7″, pp. 678, with 309 illustrations, some in colour. Price: 55s.

PROFESSOR R. J. LAST has had a unique experience in the post-graduate teaching of regional and applied anatomy. This experience has enabled him to produce a most interesting and stimulating book, of value to the graduate and undergraduate alike. The reader will find it different in approach and presentation to many texts on anatomy, and a most attractive volume on this account.

To many anatomy is a factual subject and the learning of it a pure feat of memory. To those seeking a different approach and to those whose capacity to memorize depends

on understanding rather than mere associations or a limerick crude and rude, this book will be of inestimable value. In it the writer sets out to explain how and why structures exist as they do by considering the embryology, phylogeny and physiology of the part. Anatomical facts which do not illustrate a general principle or have no practical application have been deleted from the text.

The first section of the book gives a simple account of the tissues which make up the structural framework, followed by an excellent chapter on the "Nervous System", covering nerve supply in general and a good description of the autonomic nervous system. A few concise pages on certain aspects of early embryology and an instructive and interesting chapter on the "Anatomy of the Child" complete this section of the book.

The remainder of the book covers the anatomy of the adult on a regional basis, for it is rightly considered by the author that "a comprehensive knowledge of the constituent parts that make up each particular region of the body" is the most valuable presentation for the student and clinician.

This book is essentially one of practical anatomy to be read with the skeletons and dissected parts close at hand. Emphasis is placed on the understanding of structure combined with its relationship to function and its application to medicine and surgery generally. General principles are well illustrated and freely applied.

The standard of the publishing matches the excellence of the text. Illustrations throughout are numerous and of high quality and many of them are produced from dissected specimens in the museum of the Royal College of Surgeons. Those interested in anatomy either from an examination point of view or for its practical application will welcome the publication of this book.

Medicine for Nurses. By W. Gordon Sears, M.D. (London), M.R.C.P. (London); Sixth Edition; 1954. London: Edward Arnold (Publishers), Limited. 7¼" × 5", pp. 528, with 80 illustrations. Price: 16s.

THE fact that this is the sixth edition and that there have been numerous reprints of this text-book indicates that it has been found adequate by many groups of nurses in the twenty years which have elapsed since it was first published. This edition has been revised and some chapters have been rewritten. On the whole a good outline of medicine is given and recent advances such as lente insulin, "Neo-Mercazole", "Tromexan", "Dindevan", ACTH and cortisone are briefly mentioned in appropriate sections. It is therefore difficult to understand how a method of treatment, which might be harmful, is retained. Thus for a patient who has heart failure due to diphtheria the nurse is advised that, "fomentations may be applied to the cardiac area and hot air baths may be ordered". The treatment of diphtheritic palatal paralysis is confused with pharyngeal paralysis.

Some of the author's advice is outmoded. Thus when rheumatism follows scarlet fever few today would have the joints wrapped in cotton wool or apply liniment as is suggested here. The discussion of the cause of cirrhosis is lamentably vague, alcohol and unknown toxins are incriminated, but there is no mention of the importance of certain amino acids. In kidney disease the term type II (Ellis) nephritis is used interchangeably with chronic nephritis; this may cause confusion. Achondroplasia is discussed, but not osteoporosis. The sex glands are dismissed in one sentence, whereas Banti's syndrome has two paragraphs. The dietary rituals to be followed in peptic ulcer and hæmatemesis are given at length and the reader is burdened with the names of those witch doctors who invented these regimes. More prominence could be given here to the general principles underlying treatment. These criticisms are only small points; far more important as a cause of muddled thinking are the teleological explanations freely given throughout this book and justified by their simplicity. In fact such explanations are no more helpful to the student than is a mirage to a thirsty traveller in the desert. The book would be improved by more scientific descriptions of the mechanism of hypertrophy and dilatation of the various chambers of the heart. Nevertheless with all these faults this book is still good value, and the nurse will do well who masters its contents.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"The Technique of Psycho-Analysis", by Edward Glover, M.D.; 1955. London: Baillière, Tindall and Cox. 10" × 6¼", pp. 414. Price: 35s.

Divided into three parts: "Psycho-Analytical Technique"; "Common Technical Practices"; "Clinical and Theoretical Papers", three in number.

"Public Relations in Medical Practice", by James E. Bryan, with a foreword by Louis H. Bauer, M.D., F.A.C.P.; 1954. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" × 6", pp. 316. Price: 53s. 9d.

All the activities of a medical practitioner are discussed in the light of public relations.

"Pediatric Clinics of North America: Symposia on Unusual Infections of Childhood; Laboratory Tests and Special Procedures"; 1955. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited 9" × 6¼", pp. 344, with 55 illustrations. Price: £6 *per annum*.

Comprises a symposium on unusual infections of childhood (15 chapters) and a symposium on laboratory tests and special procedures (12 chapters).

"Adrenal Cortex: Transactions of the Fifth Conference, November 4, 5 and 6, 1953, Princeton, N.J.", edited by Elaine P. Ralli, M.D.; 1954. New York: Sponsored by the Josiah Macy Junior Foundation. 9¼" × 6¼", pp. 188, with 27 text figures. Price: $3.75.

The subjects included are: "The Salt and Water Factor of the Adrenal Cortex", "The Metabolism of Adrenal Steroids", and "ACTH—A Single Substance or a Mixture of Hormones".

"The Shoulder and Environs", by James E. Bateman, M.D., F.R.C.S.(C.); 1955. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical), Limited. 10" × 7", pp. 566, with 376 illustrations. Price: £8 10s. 9d.

The book presents "a new approach to the problem of the diagnosis of shoulder disease". The technique of operations is described in detail.

"Daniel Paul Schreber: Memoirs of My Nervous Illness", translated, edited, with introduction, notes and discussion by Ida Macalpine, M.D., and Richard A. Hunter, M.D., M.R.C.P., D.P.M.; 1955. London: Wm. Dawson and Sons, Limited. 8¼" × 5¼", pp. 430, with five illustrations.

A detailed account of a nervous illness written in the first person. There are several appendices.

"Antenatal and Postnatal Care", by Francis J. Browne, M.D. (Aberd.), D.Sc., F.R.C.S. (Edin.), F.R.C.O.G., and J. C. McClure Browne, B.Sc., M.B., B.S., F.R.C.S. (Edin.), F.R.C.O.G.; Eighth Edition; 1955. London: J. and A. Churchill, Limited. 8¼" × 6", pp. 680, with 94 illustrations. Price: 37s. 6d.

The book appears for the first time under joint authorship.

"Culture and Human Fertility: A Study of the Relation of Cultural Conditions to Fertility in Non-Industrial and Transitional Societies", by Frank Lorimer, with special contributions by Meyer Fortes, K. A. Busia, Audrey I. Richards, Priscilla Reining and Giorgio Mortara, and a foreword by Frank W. Notestein; 1954. Paris: United Nations Educational, Scientific and Cultural Organization. Melbourne: Oxford University Press. 9" × 5¼", pp. 514, with six text figures. Price: 31s. 3d.

The specific fields of study included Ashanti, the Gold Coast, Buganda and Buhaya, and Brazil.

"Genetics and the Inheritance of Integrated Neurological and Psychiatric Patterns: Proceedings of the Association for Research in Nervous and Mental Disease, December 11 and 12, 1953", edited by Davenport Hooker, Ph.D., and Clarence C. Hare, M.D.; 1954. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. Volume XXXIII. 9" × 6¼", pp. 434, with 77 illustrations. Price: £5 7s. 6d.

This subject was last considered by the Association in 1923.

ILLUSTRATION TO THE ARTICLE BY E. S. R. HUGHES.

FIGURE I.

ILLUSTRATION TO THE ARTICLE BY R. A. JOSKE.

FIGURE III.

ILLUSTRATIONS TO THE ARTICLE BY E. R. TRETHEWIE AND E. L. FRENCH.

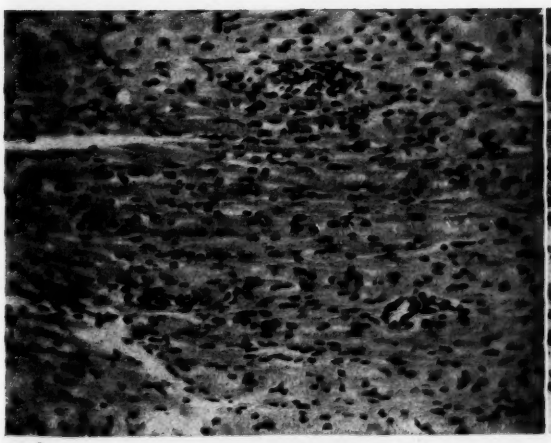

FIGURE III.

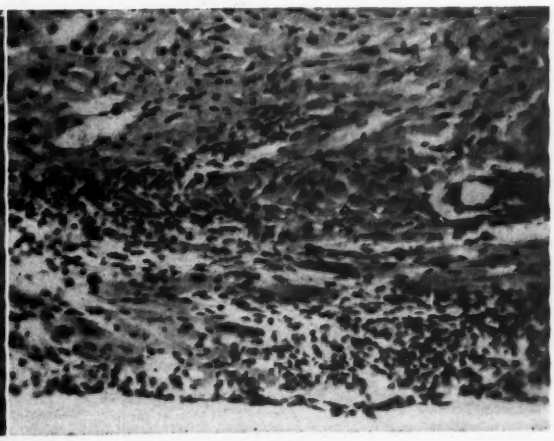

FIGURE VI.

ILLUSTRATIONS TO THE ARTICLE BY DANIEL LANE, M.B., F.R.C.S., F.R.A.C.S.

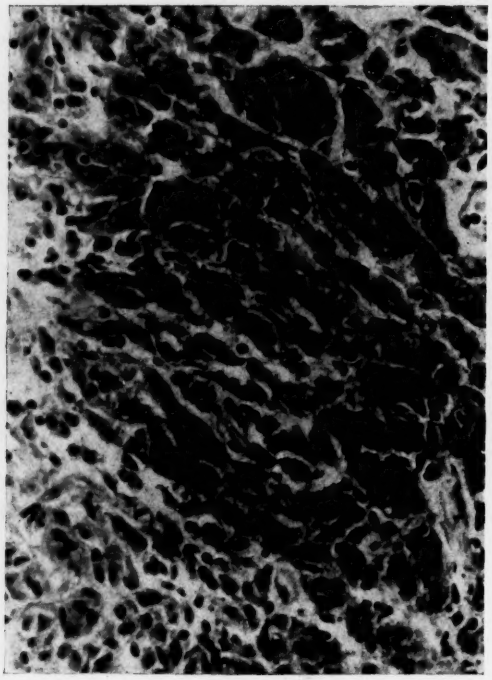

FIGURE II.

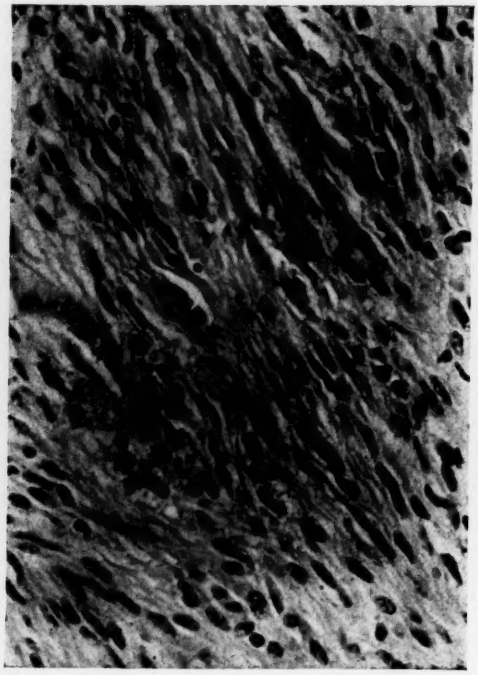

FIGURE III.

ILLUSTRATIONS TO THE ARTICLE BY W. MAXWELL.

FIGURE II.

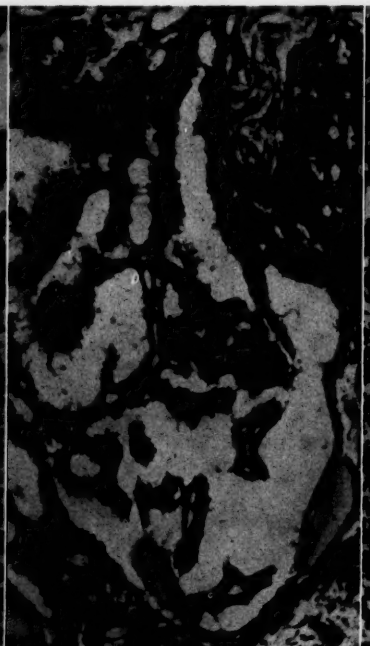

FIGURE IV.

FIGURE V.

The Medical Journal of Australia

SATURDAY, JUNE 4, 1955.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words of phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE STOLLER REPORT.

THE document on the mental health facilities and needs of Australia, which has become known as the Stoller Report, created a sensation when some of its more startling facts were given prominence under enormous captions on the front pages of the daily newspapers. The event was well stage-managed—the advent of the report was carefully heralded and most people who had thought about the subject knew what to expect. The condition of affairs in several of the States was known, though official eyes were closed and official ears were deaf. This, however, was the first occasion on which the mental health departments of the whole Commonwealth had as a body been stripped of their vestiture and exposed in all their stark and horrible nakedness to the gaze of the people. The front page headlines of the newspapers were justified and have served a useful purpose. For many years the men and women of Australia have been taught that disease of the mind is comparable with disease of any organ or set of organs of the body and that it is not to be thought of with shame, mentioned with bated breath and put out of sight to be forgotten. They have been told that, with proper care in suitable surroundings, the correct treatment, applied by one skilled in the art, will often recover the patient of his disability. They now know what to expect if they are unfortunate enough to acquire a mental disorder which calls for institutional treatment. If they live in New South Wales they will meet a fate more desperate than that awaiting similarly placed citizens of any other State. New South Wales is *facile princeps* among the delinquents.

But let us look at the report itself. A full summary of it appears in another place in this issue. An attempt has been made to describe the picture drawn for every State and to link up these pictures with the picture of Australia as a whole. The latter is important, for the first fact to be noted about this report is that the inquiry was initiated by the Federal Government. Sir Earle Page makes this quite clear in the introduction when he states that the Commonwealth Government had been willing to cancel its existing agreement with the States on mental diseases and to review the whole position *de novo*, but that the States had rejected the suggestion. On expiry of the agreement by effluxion of time the Commonwealth Government felt that it was imperative to have a full picture of mental disease and its treatment as a preliminary to discussion with the State governments. For this reason Dr. Alan Stoller and Mr. K. W. Arscott were commissioned to undertake the investigation on which the present report is based. The dependability of a report will obviously rest upon the standing of those who make it; it should therefore be explained that Dr. Stoller is Chief Clinical Officer of the Mental Hygiene Department of Victoria, Consultant to the World Health Organization, and a Corresponding Fellow of the American Psychiatric Association. He was formerly consultant in psychological medicine to the Headquarters of the Repatriation Commission. Mr. Arscott is an administrative officer of the Commonwealth Department of Health. This report then, which is mainly objective, has been made by competent and reliable observers. The sad tales of callous neglect and of responsibilities by-passed, with their detrimental and cruel effects on the helpless individual, are true. It is not as if these tales were being told for the first time. They are not. For years past the directors of mental hospital departments in several of the States have in their annual reports to the Minister concerned laid bare the facts which Stoller and Arscott have set out. This journal has not been a silent observer of these reports. Over and over again during the years the reports have been discussed in these columns, particularly the New South Wales document, which has invariably been the most shocking. The governmental neglect has been castigated in the strongest possible language. The gibe has also been made (there is no doubt more than a little truth in it) that responsible persons in the government were content to "pass by on the other side" because the mentally afflicted have no political discrimination and cannot vote. Always it has been stressed that the medical heads of departments were in no way responsible for the sorry state of affairs, but that they were being asked to do what was quite impossible. Most people recognize this, but some who should, and presumably do, know the facts, for reasons best known to themselves choose to distort them and make false statements; in so doing they assign blame to doctors where none can possibly exist.

Having discussed the facts and assigned the responsibility to the State Governments which must accept it, we naturally ask what the remedy shall be. Dr. Stoller's ideas have been set out in our précis of the report; we do not propose to traverse them again here. Obviously the first thing to be done is the provision of more accommodation. In his foreword Sir Earle Page has stated that overcrowding defeats the three main features of successful mental treatment, which are accurate diagnosis and investi-

gation, relaxation of the patient by hospital treatment or by sedatives, and occupational therapy. We should have pointed out earlier that lack of accommodation is constantly becoming worse in that no provision has been made for an increase in the number of beds proportional to the increase in the population. Increase in accommodation does not mean the placing of mattresses on the floor in wards between beds and half under them, in day-rooms, in passageways and on unprotected verandas. Increase in accommodation means the undertaking of a building programme, and that immediately. The estimate of the cost of what is needed is said to be some £30,000,000, of which the Commonwealth Government is prepared to contribute £10,000,000. Many State Ministers are reported to have declared that the Federal grant is insufficient. The Prime Minister, speaking in Parliament, described his Government's proposal as "handsome" and pointed out that the Commonwealth Government was without responsibility in the matter, but, being an Australian government, would make a contribution towards the capital problem. It has been announced that a conference to discuss the report will be held on a Prime Minister–Premier basis, and there we must leave the matter for the present.

Current Comment.

OBSERVATIONS ON RHYTHM IN RELATION TO EDUCATION.

RHYTHM, we are told, is "a certain swing or balance in bodily movement, music, verse or prose; often extended by metaphor to apply to other spheres (e.g., 'rhythm of life')".[1] On the face of it, that seems a comprehensive definition; however, people who have given the matter serious thought find that the word rhythm has a much wider and deeper significance. A. Cayla[2] has written a paper entitled *"Introduction à l'étude du rhythme dans la vie de l'enfant"* from this point of view. He begins by quoting the definition of the word given by a French musician and philosopher, Vincent d'Indy, who was born in Paris in 1851. D'Indy's definition is as follows: "Rhythm is order and proportion in space and in time." On this basis, rhythm in space is manifested in architecture, rhythm in time in music, and rhythm in both space and time in dancing. Cayla discusses this conception at some length and gives numerous examples of the application of rhythm in this sense. Obviously the subject is debatable; but we may for the present accept Cayla's principles in order to consider what he has to say on its biological and educational aspects.

Starting from the position that every human being has his own innate rhythm, Cayla states that it may be altered by age and also by the process of education. Age tends to make it slower; education may make it slower or faster. A form of education that slowed the child's natural rhythm would not be likely to do harm; by contrast, speeding up of the educational process would break the child's rhythm, destroying what it was attempting to direct. The autonomic nervous system controls the regulation of all motor, intellectual and voluntary functions. It does not control these functions directly, but it regularizes them. In the human body everything works in harmonious interdependence; this was known in antiquity, and all that modern science has done is to analyse the machinery involved. The autonomic nervous system controls our reactions to illness and to bacterial assault; it is the master of all aspects of our personality. A system of education which aimed solely at bringing the personality to its full flower would respect the autonomic nervous system—the child's times of reaction, physical as well as intellectual, and the rhythms which depend on them. But present-day life, with its impatience for immediate results, takes no thought for the forming of minds and characters, but cares only for success in examinations. So numerous have these become that it is no longer possible to live free from the competitive spirit; Cayla considers that this inhibits all formative spirit. In order that the child may appear to have superior intellectual qualities, he is taught, through his memory, all the things that he would ultimately discover for himself—perhaps more slowly, and certainly more profitably. Knowledge without meditation does not prepare the mind to understand the new things which life ceaselessly brings to our intelligence. By respecting a child's *tempi*, we should be training his mind, in accordance with his own rhythm. The abrupt breaking of rhythms such as those of physiological sleep, digestion, reactions to illness, may produce psychological trauma; the interruption of the rhythms of spontaneous movement and even of thought means running counter to all true education, all character formation. Teachers are prone to follow this line of least resistance. On the other hand, in order that education may be of the best type, all rhythmic motor activity must be first "proposed" to the child, then "imposed" on him, if necessary—but in accordance with his natural *tempo*. The most obvious rhythms, those of gesture and music, are inborn in all normal children, although it may be necessary to set them free. It is possible to bring them out even in children suffering from incoordination of psychic origin. At a later stage in his paper Cayla maintains that balance in the human organism means the preservation of its natural conditions, of all its rhythms. The scientific naturalism of the present age has confirmed the mystic naturalism of Jean-Jacques Rousseau. The lack of balance of the present day, brought about by the conditions of present-day life, are simply the result of the breaking down of our rhythms which has been continuous since our childhood. The noises heard in the streets and factories, of diverse origins and all the time increasing, are unrelated and without rhythm. Our actions, often mechanically adjusted to the cadence of a production line, respect neither the *tempo* nor the rhythm of the worker. Even under the best conditions, actions follow each other in a disjointed way which is an insult to the organism as a whole and to its mental and spiritual side in particular. If the adult's own thought and natural characteristics are outraged by the life he leads, in the child they are even more violently outraged by anti-educational teaching based on memory. Cayla concludes his discussion with the statement that the physiological rhythms of the human being should be carefully studied and cultivated. He believes that this study constitutes a science, to which he suggests that the name "rhythmics" should be given.

All this is very interesting, and much of it has been stated before; but there is quite a lot to be said from the opposite point of view. In the first place, it is by no means certain that the elimination of all competitive spirit would be a good thing. Some children (and adults, too) would never achieve anything unless they had the incentive of healthy competition; there is a difference between this and constant urging leading to anxiety. Cayla offers no suggestions as to how education may be carried out in harmony with all the varied rhythms and *tempi* of unwieldy numbers of children. The only feasible way seems to be the education of each child separately—a fantastic method, and psychologically undesirable even if it was possible. An alternative might be the devising of means by which the varying rhythms could be modified to a fairly common level; Cayla has stated that natural rhythms can be altered. However, after consideration of Cayla's paper (only a brief résumé has been given here), we cannot avoid the conclusion that, although educationists do well to make use of some at least of the principles of "rhythmics", human beings have no choice but to adjust themselves to life as it has to be lived, and they may as well begin to learn how to do this in their early years. Discipline is much harder to acquire in

[1] E. E. Kellett, "Encyclopædia Britannica", Fourteenth Edition.

[2] *Presse méd.*, February 26, 1955.

adult life. To work from the hypothesis that everything ought to give way to everybody's innate rhythms seems to be creating a kind of biological totalitarianism.

CHELATING AGENTS.

IN this journal, in the issue of August 28, 1954, brief reference was made to edathamil calcium-disodium as an apparently promising agent for the treatment of lead poisoning. Since then this substance has been widely used in the United States of America and a great deal more has been learned of its properties. Ethylenediamine tetra-acetic acid (EDTA for short, also known as "Versene" and "Sequestrone") is a synthetic polyamino polycarboxylic acid, whose tetrasodium salt forms, in a process known as "chelation", a stable, water-soluble non-ionizable ring complex with a variety of metallic ions; this complex is known as a metal chelate. J. F. Wade and J. F. Burnum[1] describe the action of EDTA very fully in their article on the treatment of acute and chronic lead poisoning with disodium calcium versenate. Originally employed in certain industrial processes to remove undesirable cations from solution, EDTA was tried in medicine a few years ago for mobilizing, fixing and eliminating toxic metallic ions; once these are incorporated as a chelate they can be excreted through the kidney. EDTA shows a definite order of preference for binding cations; sodium and potassium are held most weakly, calcium and magnesium more strongly, and the rare earths, divalent cations and then the trivalent cations in increasing degrees of chelate stability. Thus, if the sodium compound is administered it rapidly exchanges its sodium for calcium at the expense of the serum-calcium balance; in persons with a normal serum-calcium level large amounts given in a short time can induce tetany, but hypercalcæmia has been treated with the sodium compound, while tetany can be obviated, when EDTA is being used for elimination of heavy metals, by giving the calcium chelate—the disodium calcium compound is the one commonly used. From the many reports of its use, EDTA seems to be a safe drug; it is certainly effective in the treatment of acute and chronic lead poisoning, and has been used for hastening elimination of radioactive metals accidentally ingested or inhaled in atomic plants. It has been tried for mobilizing iron in hæmochromatosis; its value in the treatment of hypercalcæmia is not very clear, and in the promotion of dissolution of urinary calculi and corneal opacities, very doubtful. However, we are not here concerned so much with its therapeutic range, which will ultimately be determined by the extensive trials which it is at present undergoing, as with its pharmacological, physiological and indirect toxic effects. These would appear to depend primarily on a strictly graduated scale of avidity and stability, on which, for example, Wade and Burnum rate sodium EDTA at 1·66, calcium EDTA at 10·59 and lead EDTA at 18·20; and secondarily on the pH of the solvent, in connexion with which H. R. Dudley, A. C. Ritchie, A. Schilling and W. H. Baker,[2] in a paper entitled "Pathologic Changes Associated with the Use of Sodium Ethylene Diamine Tetra-Acetate in the Treatment of Hypercalcemia", state that one gramme of EDTA will bind about 100 milligrammes of calcium at pH 7·4, but only about 50 milligrammes at pH 6·0, and will release all its calcium, reverting to the sodium salt, at pH 5·0.

The first point to be noted is that when given by mouth, EDTA finds so many elements in the alimentary tract for which it has a high avidity that by the time it comes to be absorbed it has already formed chelates of a more stable grade than it can form with its target metal; consequently, in order to bring it to its target in a suitable form, it must be given parenterally, either subcutaneously or intravenously, since it is very painful when injected intramuscularly. Next, although large and frequent doses of tetrasodium EDTA withdraw so much calcium as to cause tetany, L. A. Kneller, H. S. M. Uhl and J. Brem,[1] writing on the successful calcium disodium ethylenediamine tetra-acetate treatment of lead poisoning in an infant, state that adults were given, by subcutaneous clysis, five grammes daily for three weeks, and this course was repeated several times, without any toxicity. On the other hand, they mention a report that a child suffering from hypercalcæmia developed acute nephrosis after receiving two to three grammes daily for eleven days; this possibly links up with the report by Dudley and his colleagues, who treated two patients with large doses of sodium EDTA for hypercalcæmia. One was a woman with multiple metastatic osteolytic carcinomata, the other a child who had been treated previously with vitamin *D* for hypoparathyroidism and moniliasis. In the case of the woman, who was dying anyhow, it is difficult to determine the rationale for her treatment. However, both patients excreted increased amounts of calcium in their urine, and their serum calcium level was reduced. Both had a reduction of their serum prothrombin, and suffered hæmorrhages from mucous membrane; both died; and both were shown to have had severe damage to the renal tubules and disturbances of the reticuloendothelial system. In these two cases there can be little doubt that with a great excess of serum calcium available, most of the original sodium EDTA was converted to a calcium chelate, and reached the kidneys in that form. It is known that calcium EDTA, when given to normal persons (in whom there would be, similarly, no reason for the formation of higher chelates), does not damage the kidneys or the reticuloendothelial system, or cause hæmorrhages. The authors suggest that acidification of the urine during passage through the kidney might have caused deposition of large numbers of harmful calcium ions. This would account for only some of the observed phenomena; but there was the case reported by Kneller, Uhl and Brem—that of an infant, suffering from lead poisoning, and treated with large doses of calcium EDTA. Early during treatment he developed oliguria which was stated to be "partially due to poor fluid intake". At a later stage he developed frank hypercalcæmia which is plausibly explained as being possibly due to rapid chelation of lead cations with the release of many calcium ions into the plasma. No ill effects followed and the infant recovered from his plumbism. No hypercalcæmia was reported by Wade and Burnum in their five lead poisoning patients, or in three reported in a paper entitled "Use of Monocalcium Disodium Ethylene Diamine Tetra-Acetate in Lead Poisoning", by H. L. Hardy, H. B. Elkins, B. P. W. Ruotolo, J. Quimby and W. H. Baker;[3] in all of these, however, the dosage of EDTA was relatively much smaller than that given to the infant who developed hypercalcæmia. After their experience with the two hypercalcæmic patients, Dudley and his colleagues advise that while EDTA is being given the patient's urine should be kept alkaline, and small doses only should be given. They state that when rats have been loaded with radioactive yttrium, the increase in yttrium excretion produced by EDTA is no greater for two doses daily than it is for one such dose. Another minor anomaly is that although 95% to 98% of unchanged carbon-labelled calcium EDTA can be recovered from the urine six hours after intravenous administration (Wade and Burnum), Hardy and his colleagues have shown that in chronic lead poisoning the effect of EDTA probably persists for a few days after cessation of therapy. From all these data one general observation can be made: when calcium EDTA is given to the normal subject nothing happens, but when it is given to a patient suffering from heavy metal poisoning or when sodium EDTA is given to patients with a normal or increased serum calcium content, untoward effects appear, especially with larger doses. That is to say, the process of chelation within the body is accompanied by side reactions which are not yet fully understood, and the initiation of such reactions should be undertaken cautiously.

The third point merely emphasizes what is already well known—that lead tends to become firmly fixed in the bones, and the freeing of it thereafter must be through

[1] *Ann. Int. Med.*, February, 1955.
[2] *New England J. Med.*, March 3, 1955.
[1] *New England J. Med.*, March 3, 1955.
[3] *J.A.M.A.*, April 3, 1954.

some biological process, not by a simple chemical one. All observers report a great increase in urinary lead excretion after giving calcium EDTA, with prompt alleviation of symptoms, but they are unanimous in insisting that it is only the lead in soft tissues which is removed; several describe subsequent recurrences of plumbism when some acute infection develops, and ascribe this to release of bone lead. Incidentally, it is interesting that there has not appeared so far any record of the use of EDTA in the treatment of poisoning by mercury, arsenic or thallium, opportunities for which must have occurred somewhere, sometime, recently. But the obiquitous lead occupies the stage almost exclusively—it is illuminating to read that Hardy and his colleagues, needing controls, used two physicians and a dietitian, none unduly exposed to lead, and found that one dose of calcium EDTA increased urinary lead excretion from a normal daily average of 0·06 milligramme to 0·46 milligramme. It appears that some thousands of cases of lead encephalopathy occur annually among children up to three years of age, with a mortality rate of over 25%, in the United States of America—this is from Robert A. Kehoe[1] in his report on the misuse of edathamil calcium-disodium for prophylaxis of lead poisoning. D. A. Henderson,[2] in his article entitled "A Follow-up of Cases of Plumbism in Children", deals with a series of 401 children aged twelve years and under who were in the Hospital for Sick Children, Brisbane, Queensland, between the years 1915 and 1935, with a diagnosis of lead poisoning. Presumably most of the children acquired plumbism from the ingestion of lead paints. Add the numbers of adults who absorb lead in the course of their work, and the field for the beneficial use of a chelating agent such as EDTA is seen to be enormous.

In the matter of industrial lead absorption, Kehoe's report is most important. Apparently EDTA has been used, among workers exposed to lead in potentially dangerous amounts, as a prophylactic against plumbism. Kehoe points out that given orally it will be of little use, since food normally contains enough higher metals to saturate EDTA. Injections, if workers would tolerate them, would be effective; but, as Kehoe forcefully indicates, the seat of the trouble is in the failure of employers to provide adequate safeguards against lead exposure and of workers to carry out adequate precautions against lead absorption. It is at this level that the attack on lead absorption should be conducted, rather than that absorption should be allowed to occur because of laxity, and then an attempt made to counter it. And here emerges a final, not unimportant point. Here and there among the levels on the scale of EDTA chelates must appear many metals which, as micronutrients, are essential to health. For instance, it appears fortunate that calcium stands where it does on the scale, or otherwise magnesium balance might be jeopardized. Calcium EDTA has a stability constant of 10·59, and is normally present in blood serum at a level of some 10 milligrammes per 100 millilitres; magnesium EDTA has a stability constant of 8·69 and a normal serum level of 2·5 milligrammes per 100 millilitres; for sodium EDTA the figures are 1·66 and 330 milligrammes. If, to 100 millilitres of blood, sodium EDTA containing one milligramme of sodium was added, chelation would take place at the highest stability level, and in this case the EDTA would release one milligramme of sodium and take up one milligramme of calcium, leaving the magnesium unchanged. The percentage alterations of the total sodium and calcium would be negligible; but if the stability constants of calcium and magnesium were in reverse ratios, then under similar circumstances the serum magnesium would be seriously reduced. Or if, in the original example, magnesium EDTA was introduced instead of sodium EDTA, then the serum calcium content would be reduced by one milligramme to nine and the serum magnesium increased by one milligramme to 3·5. Obviously, of course, this is a very simplified picture—chelation is probably proportional to molar pressures and degrees of dissociation, and many other factors must be involved—but something of the sort must happen. Sooner or later, in some such manner, continued administration of EDTA would result in the removal of many of the higher micronutrients. Lead, with its stability constant of 18·20, since it seems to be universally present in normal subjects, should protect cobalt, whose constant is only 16·10, until such time as all the lead is taken up and an excess of EDTA remains; but nickel and copper, each of which has a stability constant of 18·40, should be eliminated before lead. Short periods of administration of EDTA are unlikely to do any real harm in this way, since the body would have stores of micronutrients far in excess of the minute traces in actual use, probably securely bound, as lead is bound in bone; in any case, any reasonable diet would be capable of supplying the minute replacements necessary. But administration of even small amounts of EDTA over long periods, as for prophylaxis of plumbism, could conceivably cause serious upsets. In all, it seems as if EDTA is fulfilling its early promise, and that it is quite safe if given in moderate doses for short periods; and so far no circumstances appear to have arisen in which these restrictions need to be overridden.

[1] *J.A.M.A.*, January 22, 1955.

[2] *Australasian Ann. Med.*, August, 1954.

THE LARGE-SCALE CULTURE OF ALGÆ.

MAN has not so far devised efficient ways to use the low-level energy of sunlight directly as a source of power. Solar heat is absorbed in areas of constant sunlight to heat water circulating in exposed pipes; it is also collected and focused on cooking pots by suitable mirrors in desert areas to provide a partial solution to the problem of fuel shortage. But these are minor uses, offering no present prospect of heavy industrial development. The new solar battery, which converts sunlight into electric energy, though as yet only a toy, could undoubtedly be developed to give reasonable service, but it is unlikely to equal the heavy duty contributions available from water power, wind power, volcanic heat and nuclear reactions. These four represent the only sources of energy available to man apart from those contributed by the sun, for the energy supplied by coal and oil was originally stored up by plants from solar energy and converted by geological processes into its present easily utilized state, and the conversion process has long since been completed with no prospect of further production, while stocks are in process of being depleted. Actually, almost all the vast total of energy that the earth receives daily from the sun is wasted except for what plants convert into chemical energy by photosynthesis, and man does not use even plant energy, as food, as economically as he could. Harold W. Milner[1] states that present methods of farming are an extremely inefficient way of converting light energy into food. His argument is that since in plants only the green parts carry out photosynthesis, and much of the synthesized material is converted into stems and other non-edible structures, only about 0·25% of the available sunlight is represented in the food finally produced. The ideal food plant should cover all the growing area all the time, allowing no light to pass and be wasted on bare ground, and it should not have to use the bulk of its energy in building non-synthesizing, non-edible supporting structures. In an article entitled "Some Problems in Large-Scale Culture of Algæ", Milner develops this theme, pointing out that the unicellular green alga has a maximum of synthesizing tissue and a minimum of structural material; it can be grown in a tank containing a solution which can be varied to produce required results; and its final yield of foodstuffs would represent about 12·5% of the total available solar energy. This is not a high efficiency rating by comparison with modern machines, but we have no other machine capable of converting solar energy into chemical energy, and the prime energy source is abundant and free—actually, it is rather too abundant, for one of the problems Milner discusses is concerned with overheating and over-lighting, either of which will kill cultures of algæ. Optimum depth of tanks and, probably, mechanical

[1] *Scientific Monthly*, January, 1955.

stirring should solve this. Heat also enters into other problems. A closed system conserves water, but requires cooling, while an open system cools by evaporation, but uses a great deal of water. Carbon dioxide presents another problem—two parts are needed to produce one part of dried algæ. Much fixed nitrogen, smaller amounts of sulphur, potassium, phosphorus and magnesium, and many micronutrients are also needed. Supply and replacement of all these are dealt with in greater detail by R. W. Krauss[1] in his paper "Nutrient Supply for Large-Scale Algal Cultures".

Chlorella is the alga on which most of the work has been done. There is every prospect of annual yields of 40 tons of dried *Chlorella* to the acre, containing 50% of protein (with all the amino acids known to be essential to nutrition), 7% fat (true fats, valuable as food and also suitable for use in paints and lacquers *et cetera*), and a rich supply of vitamins. This is only one aspect, however. Milner and Krauss have shown that by supplying the necessary nutrients and using free sunlight, algal cultures are commercially practicable; H. B. Gotaas, W. J. Oswald and H. F. Ludwig,[2] in an article dealing with photosynthetic reclamation of organic wastes, describe investigations into the growth of algæ in the freely available nutrients of sewage and dairy and cannery wastes. For continuous operation, part-time artificial lighting might have to be supplied, but the triple benefits of rapidly purifying sewage, of salvaging the enormous quantity of potential nutrients now being wasted in sewage effluents, and of providing valuable stock feed, could mean that this aspect of algal culture might prove even more profitable than the former. The great benefit of the system is that it solves the essential problem of oxygen supply to sewage bacteria, while the carbon dioxide needed by the algæ is in turn released by the bacteria. There is no doubt that suitable algæ can profitably be farmed on a massive scale and can play an ever-increasing part in the world's economy. Even though people's eating prejudices are at present so fixed that, for instance, the attempt to introduce soy bean products to Australian menus was a complete failure, there may come a time when algal protein, which could be produced more efficiently than that of soy bean, and algal fats and carbohydrates, which can be produced as cheaply as by any other method, may be gratefully accepted to eke out the diet of an overcrowded world.

"PUBLISHED BY PERMISSION OF . . ."

IN the issue of *Nature* for February 5, 1955, there appears a delightful letter from Professor A. V. Hill, of the Department of Physiology, University College, London. This letter will appeal to all workers in government and hospital and university departments who wish to submit articles for publication in medical and scientific journals. A year or two ago the Editor of this journal was taken to task by the medical head of a certain government department and asked why he had published a contribution from the department in question without the consent of the director of the department. In other words, the author had not appended the usual stereotyped phrase that the article was "published by permission of . . .". Professor Hill states that authors find it necessary to thank the Director of This or the Chief Scientist of That, or the Ministry of Something or Other for permission to publish papers. The authors, poor slaves, find it necessary to thank the Director of So and So because the Director of So and So insists on this being done, and the life of the contributor would be thoroughly miserable if he did not conform to his direction. Professor Hill writes that there is nothing imaginably secret about most of the subjects handled. He quotes some which have been dealt with: boiler scale, aircraft noise, paper electrophoresis, internal stress in glass, the sexing of the confused flower beetle and the aging of quartz crystals. He points out that Senator McCarthy is unlikely any more to make trouble between Britain and the United States because of such revelations, and he does not think that a sensible director of research could feel anything but amused shame that anyone should seek to ask his permission to reveal them. Professor Hill asks whether this nonsense could not stop. He writes: "It would still be possible, if they wished, for the chief scientists, who are really quite amiable people, to follow the example of the late Lord Knutsford, of the London Hospital, at the end of a meeting over which he presided: 'And now I have one particularly pleasant duty to perform—to propose a unanimous vote of thanks to myself for the excellent manner in which I have conducted the business.'" It must be quite obvious, of course, that votes of thanks which are passed as a routine procedure, thanking the president of a certain body for the admirable way in which he has presided over a gathering, render the whole business worthless. We sometimes wonder whether the president or chairman in question would feel aggrieved if the formal vote of thanks was not tendered to him. Professor Hill ends his letter by stating that it "is published without the permission of the Professor of Physiology in this College".

[1] *Scientific Monthly*, January, 1955.
[2] *Scientific Monthly*, December, 1954.

PREVENTION OF UPPER RESPIRATORY DISEASE.

MANY have been the attempts to prevent upper resiratory disease in subjects exposed to infection. Such an attempt has been recently carried out in a large training station of the Royal Air Force in the south of England. T. C. MacDonald, J. D. Tonkinson, J. Porterfield and K. R. Dumbell have recorded the results.[1] The total population of some 4000 persons included at the relevant times between 1200 and 1800 young apprentices organized in three wings each with its own barracks, dining hall and recreation rooms and workshops. Intermingling of the "wings" was limited. Impregnated handkerchiefs were tried first. The handkerchiefs were impregnated in a special way with octyl cresol, which small-scale experiments had shown was very effective in sterilizing nasal secretion.

The use of the handkerchiefs by the several groups was varied from time to time, some having impregnated handkerchiefs, others serving as controls. There was no difference in the incidence of the various respiratory infections in the different groups over a period of about seven months. A trial was then made in the following year over about the same period and combined methods of attack were used. The potential routes of infection taken into account were: (*a*) air-borne infection in barrack rooms—the rooms were irradiated with ultra-violet rays; (*b*) dust-borne infection in barrack rooms for which oiling of the floors and oiling of bedclothes and pyjamas were used; (*c*) direct droplet spread in barrack rooms taken care of by screens between the beds; and (*d*) infection with handkerchiefs which was controlled by impregnated handkerchiefs.

Tests were made once a week for the general bacterial content of the air in the rooms. Counts were low in all rooms, and although the counts were always lower in the treated than in the untreated rooms the differences were small. The handkerchiefs in part of this series of observations were impregnated with glycollic acid. There was no appreciable difference in the incidence of disease diagnosed as influenza in groups with and without glycollic acid impregnated handkerchiefs. The results were similar in the incidence of sore throats. With the common cold the position was somewhat doubtful; with some groups the incidence was higher and with others lower in the groups with impregnated handkerchiefs than in the control groups. Similar results were obtained with octylalcohol. It seems that the methods tried gave no real protection, and the only way to avoid a cold or influenza is still to keep away from infected persons and their effects.

[1] *Brit. J. Prevent. & Social Med.*, January, 1955.

Abstracts from Medical Literature.

SURGERY.

Major Vascular Complications of Intervertebral Disk Surgery.

S. HARRISON (*Ann. Surg.*, September, 1954) reports a case of arterio-venous fistula between the left common iliac artery and vein following the (presumably partial) removal of the intervertebral disk between the fourth and fifth lumbar vertebræ for herniation. He has also surveyed 29 other cases of major vascular trauma and one case of injury to the small intestine following a similar operation; injury occurred to the aorta, inferior *vena cava* and right and left common iliac vessels. Included amongst the results were six arterio-venous aneurysms. The interesting thing was that immediate hæmorrhage was slight; so that in 18 instances the accident was unrecognized at the time of the laminectomy. In 60% of cases the patient died within a few hours of the injury. The injury was caused by direct instrumental trauma to the vessels anterior to the disk operated on. Rongeur forceps of the pituitary type appeared to be the most dangerous instrument in the causation of this catastrophe.

Ultrasonic Irradiation for Subdeltoid Bursitis.

JOHN H. ALDES (*Western J. Surg.*, July, 1954) states that subdeltoid bursitis, which has various synonymous titles, has been regarded as a difficult therapeutic problem. Conventional forms of therapy used for treatment of this condition have been short-wave therapy, microthermy, electrotherapy, radiant heat, hot packs, "Novocain" injections with hot saline flushes, X-ray therapy and in some cases even surgery. In 1938 the author made an evaluation of all bursitis therapy known at that time, and reached the conclusion that diathermy or X-ray therapy was the most beneficial. During the past four years an investigation has been conducted into the use of ultrasonic irradiation for various diseases and disabilities; early results showed that the physiological and biochemical effects of ultrasonic irradiation were beneficial in many chronic orthopædic and neurological conditions. The author presents the results of the use of ultrasonic irradiation in a group of 210 patients with subdeltoid bursitis who were followed for at least three years. Ultrasonic waves have a frequency above that of audible sound and are usually produced by the peizoelectric crystal method. The generator consists of a high-frequency circuit, an oscillator circuit and a quartz crystal, which is the integral part of the hollow metal applicator. By exposure of opposite sides of the quartz crystal to an alternating electric field the crystal is caused to vibrate, and the resulting ultrasonic vibrations are transmitted to the front plate of the treatment head. Ultrasonic waves will not travel through a vacuum, and transmission through air is ineffective. A coupling agent, such as an oil of high viscosity, or water is, therefore, necessary between treatment head and the area to be treated. At the optimal frequency of 800,000 or 1,000,000 cycles per second, a layer of tissue two to six centimetres may be reached by ultrasonic waves. The effect decreases with depth because of reflection, refraction or absorption in the tissues. Very high intensities may greatly affect the molecular structure of tissues and cause damage or even necrosis. The Arndt-Schultz principle holds true, that weak stimuli excite living processes while strong stimuli are destructive. The most important among the numerous biochemical, biophysical and physiological effects of ultrasonic irradiation is the powerful micro-massage to which the cellular tissues are subjected. These mechanical vibrations increase blood supply, influence the sympathetic and parasympathetic nervous system, stimulate metabolism, and produce an analgesic effect. There are many other physiological, biochemical, physical and biological effects which cannot be separated, but all play a certain role in improving mobility and relieving pain. The procedure of the treatment is given in great detail, and statistical data are presented showing the results in 210 cases. Permanent or good results were recorded in from 78·8% to 80·2% of cases with a partial or slight improvement in 19·8%. Ultrasonic irradiation not only was more effective alone than conventional forms of treatment, but in combination with conservative methods proved most effective.

Total Gastrectomy for Gastric Cancer.

S. MARSHALL AND H. URAM (*Surg., Gynec. & Obst.*, December, 1954) present a series of 202 cases of total gastrectomy of which 184 were for malignant tumours. The mortality rate in the last 127 cases was only 8·7%, whereas previously it had been 34·6%. Of those patients who survived total gastrectomy, 26·2% lived three years or longer and 14·1% lived five years or longer. From their figures, the authors conclude that total gastrectomy does not increase the five-year survival rate in gastric carcinoma, consequently, except in selected cases, the employment of routine total gastrectomy in this condition is not yet justified. Better results depend on earlier rather than on more extensive operation.

Pleural Effusion and Orthopædic Tuberculosis.

F. STEVENSON (*J. Bone & Joint Surg.*, February, 1955) concludes from a study of 63 patients with a history of pleural effusion at an orthopædic hospital, that the most common cause of pleural effusion in patients with orthopædic tuberculosis, who have normal lungs and have not recently suffered spinal decompression, is transpleural infection from thoracic spinal disease. This sequence is by no means rare, and it occurred in one in six of 145 patients with thoracic Pott's disease. The author states that in some instances when a thoracic paravertebral abscess tracks laterally and becomes well clear of the spine, it may project forwards, so that in an antero-posterior radiograph of the chest it may appear as a shadow in the lung with no apparent connexion with the central paravertebral abscess. Aspiration will yield pus from this posterior extra-pleural abscess extension.

Thyroiditis.

A. JACKSON AND L. GILMAN (*Am. J. Surg.*, December, 1954) recognize three types of thyroiditis, namely (i) acute and subacute thyroiditis (which may be suppurative, resulting from bacterial causes, or non-suppurative, probably resulting from viral causes), (ii) Hashimoto's disease, and (iii) Riedel's struma. They discuss each and state that there is no evidence of interconnexion between these types; for instance, Riedel's struma is the end-result neither of Hashimoto's disease nor of acute or subacute thyroiditis.

Partial Gastrectomy, Vagus Resection and Duodenal or Marginal Ulcer.

L. PALUMBO, T. MAZUR AND B. DOYLE (*Surgery*, December, 1954) present the results of a series of partial gastrectomies in the treatment of duodenal or marginal ulcers in 231 patients; 18 were treated by partial gastrectomy alone and 42 by partial gastrectomy *plus* bilateral infra-diaphragmatic vagal resection. The authors conclude from a comparison of the results of the two methods that, whilst the addition of vagus resection did not increase the mortality rate, it did increase the morbidity rate; for whilst the overall results were considered good or satisfactory in 89% of those cases in which partial gastrectomy only was performed, only 80% in the series with added vagotomy were satisfactory. This increased morbidity was due to disturbances in stomach and bowel functions, notably gastric fullness and discomfort, diarrhœa and/or constipation. Whilst vagal resection prevented stomal ulcers, it did not change the frequency or character of the dumping syndrome.

Ligation of the Popliteal Vein for Leg Ulcers.

H. D. MOORE (*Lancet*, March 5, 1955) describes the results of ligation and excision of a segment of the popliteal vein in the treatment of leg ulcers of venous origin in patients followed for an average of four and a half years after operation. As well as clinical examination an investigation was made into the state of the ligated veins by venography and measurement of the venous pressures. The author states that the clinical results were bad, and that the results of venography and venous pressure measurement showed that the theory of the operation has an unsound basis. Nevertheless, three intractable ulcers remained healed for five years after the operation before breaking down, and two were still healed at the time of follow-up examination. The author states that no explanation is offered for these results.

Results of Arthroplasty of the Hip Joint.

M. J. KINGMA (*Arch. Chir. Neerl.*, Volume 6, 1954) states that two-year follow-ups were performed on 100 patients who had undergone arthroplasty of the hip for osteoarthritis. In 58 of the operations Smith-Petersen's

cup was used and in 42 a Judet acrylic prosthesis. Subjective results were as follows: 60 patients were satisfied, 10 were in doubt, and 30 were dissatisfied. The author points out as a result of these observations that restoration to normal is not to be expected from an arthroplasty. The most that can be hoped for is relief of pain. The operation does not give better movement or improved gait. Whatever technique is used, the chances of failure are considerable. The only reason for arthroplasty for osteoarthritis of the hip joint is unbearable pain, considerable alleviation of which may be expected, but without functional improvement.

Lumbar Sympathectomy for Peripheral Arteriosclerotic Vascular Disease.

R. BERRY, C. FLOTTE AND F. COLLER (*Surgery*, January, 1955) present a critical review of the results of 391 lumbar sympathectomies in 275 patients performed during the period from 1945 to 1952. Good results were obtained in 94 cases (34%) and poor results without amputation in 55 (20%); 107 major amputations were performed on 119 patients; 108 patients were dead, the average survival time being twenty-five months, one-third living less than one year. The results were essentially the same in patients with ulceration or gangrene whether or not diabetes was present. It was concluded from this series that a minimal number of good results from sympathectomy are to be expected in those patients (*a*) who are elderly diabetics with a raised blood pressure or arteriosclerotic involvement of other organs, (*b*) who have severe atrophy of the soft parts of the leg with evidence of marked capillary anoxia, (*c*) who have severe pain of the foot or leg with absence of the popliteal pulse, (*d*) who have a rapidly progressing lesion with widespread arterial involvement, or (*e*) who have gangrene or ulceration of the foot with severe pain and obliteration of the popliteal pulse and are over sixty years of age.

Pilonidal Sinus.

F. P. TURNER (*Ann. Surg.*, November, 1954) points out that primary closure following excision of sacro-coccygeal cysts and sinuses is more frequently carried out today than it was a decade ago. He reports the result of such a procedure carried out on 59 patients with pilonidal sinus, representing 83·1% of the patients admitted into hospital with this disease in a period of three years. The author considers that the method could well have been carried out on 66 patients, or 93% of the total seen. Primary wound healing was obtained in 52 patients, or 88·1%. Secondary wound healing was obtained in seven patients, the average healing time for these seven patients being forty-two days. Follow-up studies have been carried out on 55 patients, with an average follow-up of 15·5 months. There have been four recurrences. The author stresses seven surgical principles which are of obvious importance in the successful closed operation for pilonidal sinus. These are (i) complete excision of diseased tissue, (ii) reduction of wound contamination to a minimum, (iii) adequate hæmostasis, (iv) complete obliteration of dead space, (v) accurate apposition of tissue layers, (vi) avoidance of tension in the suture line, and (vii) limitation of motion in the vicinity of healing tissue. The technique followed is explained in detail with illustrations, and points of interest and importance emerging are explained. Excision is wide, *en bloc* and without undercutting. The fascia overlying the *gluteus maximus* is incised on each side and parallel to the wound in order to permit medial mobilization of musculofascial flaps, with these flaps, subcutaneous tissue and skin more medially. Closure is made by the necessary number of "far, near, near, far" sutures of wire through all layers, with fine silk apposition of the skin layer. The silk sutures are tied over two rolls of dressing.

The Treatment of Keloids.

J. G. GATHINGS (*Am. J. Surg.*, September, 1954) has produced a preliminary report on the combined use of two preparations, hyaluronidase and "Kutapressin" in a small series of cases. He has been very favourably impressed with the degree of softening and resolution produced. "Kutapressin" is a fractionated preparation derived from crude liver; one millilitre of this is introduced directly into a vial containing 150 TR units of hyaluronidase. The resultant mixture is then injected directly into the keloid in amounts of from one-tenth to two millilitres. The total amount used depends upon the size, age and consistency of the lesion. The interval between injections varies from four days to two weeks.

Eosinophilic Granuloma of the Rib.

C. S. W. FRENCH (*Am. J. Surg.*, October, 1954) states that he reported two cases of eosinophilic granuloma of the rib in one year recently and is now able to report a third case. The finding of three cases in four years as well as an increasing number of reports in the literature suggests that this type of lesion either is becoming more frequent or is being recognized more often. In 1935 Fraser described the condition, while in 1940 Lichtenstein and Jaffe gave the disease its present name of eosinophilic granuloma. The consensus of opinion now is that Schüller-Christian disease, Letterer-Siwe disease and eosinophilic granuloma are variants of the same disease. It was thought at one time that this disease was primarily limited to children and young adults, but recent reports indicate that it occurs commonly in the fourth, fifth and even sixth decades of life. It is found most commonly in ribs and other flat bones such as those of the skull, scapula, mandible and pelvis. The symptomatology usually consists of low-grade pain over the affected area and may be associated with a mild febrile reaction. There are usually swelling and tenderness over the affected area and, more rarely, weight loss, anorexia and malaise. Spontaneous healing and cures by X-ray therapy and simple curettage have been reported. Eosinophilic granuloma must be differentiated from metastatic carcinoma, simple bone cyst, Ewing's sarcoma, reticulum cell sarcoma, myeloma, lymphoma and osteochondroma, as well as fibrous dysplasia of bone, osteomyelitis and *osteitis fibrosa cystica*. Obviously histological examination is mandatory in order to rule out the aforementioned conditions. A case is reported with full details including those of the stained section of the lesion.

Marginal Anastomoses of Arteries to the Large Intestine.

J. V. BASMAJIAN (*Surg., Gynec. & Obst.*, November, 1954) was convinced that the current teaching about the marginal anastomoses of the arteries to the large intestine was either inadequate or inaccurate in many ways. He therefore undertook a series of dissections of the arteries and their communications. He used 71 cadavers and routinely injected red "Latex" rubber into the left femoral artery. This technique gives an excellent injection of most of the arteries of the body and is much superior to older techniques. Except in the area between the last branches to the pelvic (sigmoid) colon and the superior rectal artery, the marginal anastomoses were generally good. In the position mentioned as the exception, there is a strikingly high proportion (two-thirds) of total absence of anastomoses. This series under study showed that one must not take for granted that the anastomosis in any area is always good. Indeed, it may be absent or very poor in areas where it is usually thought of as adequate. Examination of one part of the marginal anastomoses gives little if any indication of the character of the anastomoses in other, even neighbouring areas. The surgeon can usually expect a good anastomosis everywhere except the recto-sigmoid area, but, even so, he should treat every case individually, examining the anastomoses carefully along the whole length of bowel with which he is concerned.

Bacteriæmia Due to Pseudomonas Aeruginosa.

W. MARTIN, J. SPITTEL, junior, W. WELLMAN AND J. GERACI (*Proc. Staff Meet., Mayo Clinic*, October 13, 1954) review 10 patients suffering from bacteriæmia due to *Pseudomonas æruginosa*. In seven cases the genito-urinary tract was the portal of entry, five following an operation on the urinary tract (cystoscopy in four cases and transurethral resection in one). In one case burnt skin provided the portal of entry of the organism. In two the origin was unknown. Clinically, the patient presents the picture of septicæmia with "*erythema gangrenosum*" and agranulocytosis, and at times thrombocytopenia. All patients were treated with one or other antibiotic, two with streptomycin (of whom one died), one with the tetracycline group (who died), two with the combined streptomycin-tetracycline group (of whom one died), and three with polymyxin B sulphate or aerosporin sulphate (all of whom recovered). The authors recommend that polymyxin be used for this disease. The daily dosage for adults is 100 to 200 milligrammes given intramuscularly in four doses. This drug must be used with caution. It may cause severe pain at the site of injection, acral and circumoral paræsthesia, cerebellar ataxia and renal damage.

Public Health.

THE MENTAL HEALTH FACILITIES AND NEEDS OF AUSTRALIA.

THE report on the mental health facilities and needs of Australia by Dr. Alan Stoller and Mr. K. W. Arscott, which has been given much publicity in the daily Press and on the radio, is a document of 192 pages and merits the careful attention of all medical practitioners in the Commonwealth. There is a foreword by Sir Earle Page, Minister for Health of the Commonwealth, who states that the Commonwealth Government has been dissatisfied with the five years agreement on mental diseases made by the previous Government with the Governments of the several States. The agreement in question "did not go to the root of the matter, as it merely substituted one form of raising revenue for another, without any overall increase and made no mention of improvements of methods of treatment". It was for this reason that the Federal Government commissioned Dr. Stoller and Mr. Arscott to prepare this report. The States agreed that Dr. Stoller and Mr. Arscott should have full access to their organizations.

Terms of Reference.

The purpose of the survey of the mental institutions in Australia was to establish a basis for Commonwealth financial assistance to the States and for future discussions between the Commonwealth and the States. It was directed that the survey should cover the following:

1. *Existing Facilities.*—Survey the existing mental health facilities in all States, and report on the adequacy or otherwise of:

(*a*) Patient accommodation: (1) Hospital. (2) Sleeping quarters. (3) Dining. (4) Day. (5) Rehabilitation.

(*b*) Recreational accommodation: (1) Indoors. (2) Outdoors. (3) Visitors. (4) Occupational therapy.

(*c*) Ancillary accommodation: (1) Boiler plant. (2) Laundry. (3) Kitchen.

(*d*) Staff accommodation: (1) Medical. (2) Nursing. (3) Domestics. (4) Other male staff. (5) Married personnel. (6) Dining. (7) Recreational.

(*e*) Administrative accommodation: (1) General office. (2) Records. (3) Stores. (4) Admitting.

(*f*) Site: suitability for expansion.

2. *Patients.*—Ascertain the number of patients in each mental institution, or attending as out-patients, divided into males and females, classified as to types and in age groups.

3. *Plans Made by States to Meet Problem.*—Ascertain from each State authority the steps considered necessary to cope with the problems associated with providing care to the mentally ill in their respective States, and comment upon such plans.

4. *Capital Expenditure.*—Ascertain the estimated capital expenditure required for buildings and equipment at each mental institution to provide for: (*a*) immediate needs, (*b*) future needs.

5. *Maintenance Costs.*—Ascertain the cost of maintaining each mental institution: (*a*) per patient day, (*b*) per patient stay.

6. *Administration.*—Ascertain the pattern of administration at the State level and report on the extent to which Commonwealth-State cooperation can be helpful.

7. *Services to Persons Not Certified.*—Ascertain the facilities available in each State for the treatment of persons who are not certifiable, divided into (*a*) governmental, (*b*) private.

8. *Staff.*—Ascertain the number and type of staff, with estimates of shortages.

9. *Medical Treatment.*—Examine the type of, and the standard of medical treatment given at each mental institution and the system of segregating patients suffering from different forms of mental disease. Make recommendations for improvements (if any) to equipment and facilities, to provide for proper segregation, diagnosis and treatment.

10. *Teaching Facilities.*—Examine the teaching facilities available in each State and report on the training of: (*a*) doctors, (*b*) nurses, (*c*) aides, (*d*) others.

11. *Auxiliary Services.*—Report on the use of and need for: (*a*) out-patient services, (*b*) day hospitals, (*c*) home visiting, (*d*) services to children.

12. *Preventive Programme.*—Report on preventive measures that might be considered as part of any future mental health programme.

13. *Recommendations.*—Make recommendations regarding improvements or changes in the field of mental care, and give estimated increase or saving in costs that would result in the implementation of such recommendations.

Plan of the Report.

The report really consists of 15 sections. Sections 7 to 12 each deal with a single State. Section 13 is a report on the several territories, including the Australian Capital Territory. Section 14 sums up the whole position for Australia. The last section is made up of a series of "annexures". Clarity will best be served if the whole position for Australia is first set out and then separate reference is made in turn to each of the States.[1]

The Present Position in Australia as a Whole.

The Size of the Mental Health Problem.

In 1953 Australia, with a population of 8,873,000, had a resident population of 28,950 in mental hospitals, the number under care during the year 1952-1953 being 33,548. The number of "operative beds" was 24,170; there was thus an overcrowding figure of 4780, or 20%. In the authors' view, the true figure was much larger than this, as the function of most hospitals had been distorted almost beyond recognition, and essential services to patients had been eliminated by the conversion to dormitory space of day-rooms, dining-rooms, corridors, verandas, and even in odd cases bath-rooms. Only the space used for dormitories was taken into account in the estimation of overcrowding; the numbers for which the wards were originally designed were not used.

The actual bed shortage on a basis of four per thousand of population, a minimal figure for Western communities, is 10,962. The authors estimate that in 1963 the Australian population will be 11,000,000, and the bed requirements will then be 20,000 above the 1953 figures. In simple language, this means that to allow for future developments and to catch up on a minimal estimation of overcrowding, twenty 1000-bed mental hospitals will be required in ten years. This will increase the present mental hospital population by 70%.

The mental hospital population between the years 1945 and 1953 increased from 25,917 to 28,950. There is an unsatisfied demand for treatment and accommodation. The ratio of certified patients to population actually declined from 1:288 in 1947 to 1:304 in 1953. This, we read, is obviously due to pressure of beds highlighting the lack of provision of new accommodation and the resistance to admissions arising from overcrowding. Over the last five years the number of admissions has steadily increased. They increased very rapidly in 1951, and it is not therefore surprising with the shortage of beds to find discharges paralleling this to some extent with a high readmission rate for the following year.

A study of ages of patients admitted shows that in the over 60 age group, the rate is 30% to 33%, double that of the proportion of over 60's in the population, and the under 15's represent less than one-fifth their relative proportion in the population.

The percentage of discharges to admissions in mental hospitals is around 45 for Australia and the percentage of deaths to admissions is 35 to 40. The percentage of deaths is undoubtedly affected by the high proportion of senile persons admitted to mental hospitals. The death rate has remained fairly constant at around 8% to 10% of the resident population over the last five years.

The Cost of the Mental Health Problem.

State mental hygiene departments or their equivalents furnished particulars of their current and approved works programme and indicated the further plans that had been made to increase bed accommodation, as well as to provide better facilities for the treatment of the mentally ill. Where costs had not been determined, new hospital accommodation is estimated at £3000 per bed and new ward accommodation in existing hospitals at £2000 per bed. It is clear that each additional bed provided must increase the cost of main-

[1] Most of the report has been written in the past tense, as describing the observations made by the authors. In this account of the report this method has been largely followed.

tenance. At the present time, the average cost of maintaining a patient in a mental hospital is £325 *per annum*. If 20,000 new beds were provided by 1965-1970, this would mean an additional maintenance cost of £6,500,000 *per annum* for this increase alone. However, even on present maintenance expenditure, maintenance costs over the next ten years will amount to £108,500,000 (this sum is dissected for the several States). The cost of 20 new 1000-bed hospitals will add at least £3000 per bed, or more than £60,000,000 by 1965-1970. The details of this estimation are shown in a table. Stoller and Arscott have made no attempt to estimate the enormous amount of expenditure which will be required to catch up on the backlog of maintenance of building and equipment. They state that many millions of pounds will be needed in order to bring existing patient and ancillary facilities to a reasonable standard. In addition to the considerable work which has to be done to create satisfactory sleeping accommodation, a tremendous amount of work is needed for the renovation of toilets, sculleries, furnishings, recreation rooms, kitchens, laundries, boiler houses, dining-rooms, staff amenities, office accommodation and artisans' workshops, which in many cases were located in temporary hutments which had been used by the building contractor who originally erected the hospital. As an example of the magnitude of the cost required for renovations and replacements, the programme at Gladesville Mental Hospital, New South Wales, is quoted. The several items needed are set out and these total a sum of £934,500. Emphasis is laid on the fact that although every item of this work is urgently necessary, this expenditure at Gladesville Mental Hospital will not provide one additional bed.

An indication of the cost to the community of hospitalized mental patients is given by working out the average length of stay of patients in residence at the mental hospitals at the time at which they were visited. Stoller and Arscott have taken current maintenance rates and have estimated the loss of productivity at the basic wage of £11 14s. per week. On this basis, the patients in mental hospitals would cost the community £266,000,000. Any increase of turnover of patients or productive activity could mean a great saving to the community. These costs do not include what the community has to pay for the indirect cost of admissions to mental hospitals, the loss of taxes, social services payments, and the cost of caring for children of mentally ill parents. They do not also include the cost of the Repatriation Department Psychiatry Service, the time and manpower involved in general hospital and private psychiatry practice, and the money involved in the handling of psychosomatic patients in hospital and general practice. There is, in addition, the cost that courts and penal systems have to bear in the handling of people with psychopathic personalities and other psychiatric disorders. Other factors mentioned are the burden of chronic alcoholism, the secondary effects of mental disorders in producing divorces, broken homes and problem families; the loss of time to industry; the number of suicides and homicides; and the use of public health personnel, school workers, welfare workers, rehabilitation workers and so on. Stoller and Arscott state that it is therefore not surprising that the mental health problem is referred to as public health problem number one.

Psychiatric Services in Australia.

The reader is informed that the remarks under this heading in the section on Australia as a whole are complementary to remarks made on the subject in certain sections under the headings of each State. Stoller and Arscott state that Australian standards are generally lower than those existing in the United States of America, the United Kingdom and Canada. They are lower in terms of beds, staffing, extramural activity and research. At the same time, standards overseas are by no means ideal. A forward move has taken place overseas since 1945, certainly in the United States of America and Canada, and this has not been paralleled in Australia.

The following developments are listed as having occurred in psychiatry during the last century: (*a*) A separation of mental patients from other patients under public care and the establishment of mental institutions. (*b*) A gradual change from custodial to therapeutic care. (*c*) The separation of acutely ill patients from continued-treatment patients and the segregation of patients within mental hospitals. (*d*) A change in the type of personnel employed—a result of increasing specialization following on increased scientific knowledge. (*e*) Recognition that mental health services are a health problem and the formation of mental health divisions in State health departments. (*f*) Changes in public attitudes to the mentally ill, evidenced by an interest in their welfare and the formation of voluntary organizations. (*g*) A gradual shift of emphasis in the direction of community services, including diagnostic and early treatment services with a growth of "private psychiatry" which has been maximal since 1945.

The "historical process" has not got to the stage (as in the United Kingdom, United States of America and Canada) at which it has been felt necessary to introduce an overall guiding influence in the form of a division of the national public health department, which can obtain an overall view in line with the enormous national implications of the mental health problem. Prior to 1939, Australian psychiatry was largely the psychiatry of the mental hospital, and even now this legacy predominantly persists, even though directors of mental hygiene can see beyond this and are thinking in terms of a psychiatry which provides close links not only with the health services of the people in general, but also with social welfare programmes.

Repatriation Department.

Since 1945 the Repatriation Department has developed a diagnostic service for a potential case load of 1,300,000 of the population and a therapeutic and review service for "accepted" cases. Its in-patient general hospital psychiatric service of 366 beds is of high standard, and these represent approximately 10% of all beds in repatriation general hospitals. Staffing is good and all forms of treatment are employed. It gives out-patient follow-up and pension support where necessary. The success of the Department's programme is indicated by the rate of mental hospitalization, less than 1000 accepted patients being in mental hospitals—and the policy of acceptance is fairly liberal.

Private Psychiatry.

Private practice in psychiatry has shown a vigorous growth since 1945 and represents an extension of early community treatment of neuroses and milder psychoses. It is stated that there are 59 psychiatrists in private practice. These are said to handle some 500 patients each in a year with perhaps 20% of psychotics. They therefore can, and do, prevent a considerable number of patients with milder psychoses from entering receiving houses. The facilities for private practice in psychiatry are far from ideal and only patients with short-term conditions can be dealt with; most of those with long-term and acuter psychoses have to be passed on. Nowhere have private psychiatrists the opportunity to follow through their psychotic patients to pay beds which are supervised and subsidized by a government.

General Hospital Psychiatry.

The provision of in-patient beds in general hospitals is largely a post-war phenomenon, but numbers outside the repatriation hospitals are woefully inadequate. The number of public general hospital beds for psychiatric patients, excluding those controlled by the Repatriation Department, was found to be 37 in New South Wales, 38 in Victoria, about 100 in Queensland, 11 in Tasmania and none in South Australia or Western Australia. Adult out-patient clinics were found to be present in general hospitals in all the States, but only two full-time clinics existed in Australia, and these were "repatriation clinics". Child guidance clinics are run in association with children's hospitals in Sydney, Melbourne, Brisbane, Adelaide and Perth, but only the Melbourne clinic was found to be approaching a full-time service.

General Community Clinic Services.

Throughout Australia, out-patient clinics in psychiatry were located in 53 centres; the majority functioned only up to three sessions a week and approximately 14 ran six or more sessions a week. The overall provision of clinical out-patient services was found to be far below minimal accepted standards of one full-time clinic per 100,000 of population and one child clinic per 300,000 of population.

Facilities for Reception and Early Treatment.

The acute shortage and poor nature of facilities for early treatment and reception of acutely ill psychiatric patients constitutes an urgent problem. Further reference will be made to this subject when conditions in the several States are considered.

Mental Hygiene Departments.

1. *Central Administration.*—In most States there is insufficient central staff to make adequate planning for the psychiatric needs of the State and to initiate developmental programmes.

2. *Mental Hospitals.*—Mental hospitals are, as already indicated, hopelessly overcrowded, poorly maintained and short-staffed, and as a result are confined to little beyond a custodial role. Diagnostic and treatment equipment and facilities are sorely lacking. These hospitals are in no position to develop out-patient programmes or programmes of training and education, and research is virtually "unthinkable". No new building of any consequence has taken place since 1939, and even in that year the hospitals were overcrowded.

3. *Legislation.*—In most States legislation is not up to date. The details will be given in connexion with each State. Modern psychiatric knowledge demands that legislation should aim primarily at the avoidance of committal and the provision of early diagnosis and treatment.

4. *Staffing.*—The overall staffing of 7859 was something like 1000 below a not very generous establishment. The medical officers numbered about 125, with a doctor-to-patient ratio of one to 235—"a totally absurd situation", especially as this included executive and administrative staff. Of the total number of medical personnel, only one-third were found to have post-graduate and psychiatric qualifications, and three States had no qualified psychiatrist on their mental hygiene staff. (Presumably the authors of the report define a qualified psychiatriast as one with experience possessing a special diploma in psychiatry.) Nurses were 796 below establishment on an actual strength of 5375, but males were only 102 down as compared with 694 females. Female patients represented 52% of the total number under care in the year 1952-1953. Clinical psychologists were found to be employed in any numbers only in Victoria and there at a clinic level. No special training for clinical psychologists is stated to exist in Australia. Social workers were found to be badly needed in all States, but the shortages were so chronic that a relative inertia had been induced. No post-graduate courses for psychiatric social workers are stated to exist. Occupational therapists were in short supply and some States were endeavouring to overcome the shortage by giving short training courses to nursing staff, thereby creating a grade of occupational therapy aide.

The Senile Problem.

The problem of senile persons has been a severe burden to all mental hygiene departments and was found to be roughly parallel in all States. The proportion of senile patients under care in mental hospitals was found to be twice that of the proportion in the community. Roughly, a third of all persons admitted to mental hospitals were over the age of sixty years. Many of them had obviously been sent to mental hospitals to die; 40% of deaths which took place occurred within a year of admission.

Mental Defectives.

Mental hospitals have had to take low-grade mental defectives because separate mental deficiency accommodation has not been available, and this has not only resulted in disturbance of the function of the mental hospital but has also proved an added burden in regard to segregation. On more than one occasion, child mental defectives were found in the same ward as senile patients. Victoria, Queensland and Tasmania alone have made an attempt to give some extramural community service to mental defectives beyond putting them in mental hospitals.

Epileptics.

Epileptics have added their burden to the demand on mental hospital beds. Many of them could be handled in a properly equipped epileptic colony if one was available.

Criminals.

No State in Australia has a separate hospital for the criminally insane. New South Wales has a separate self-contained unit which is soon to be enlarged, but all other criminal wards throughout mental hygiene departments did not allow adequate segregation of criminal and other mental patients.

Alcoholics.

No special units were found for the psychiatric management of alcoholics in mental hospitals, and accommodation generally was unsatisfactory.

Tuberculosis.

The situation with regard to tuberculous mental patients is stated to be a very grim one. Western Australia alone has completed specially segregated accommodation for such patients. General management of the tuberculous mental patient is poor and precautions against infectivity are far too often negligible.

Other Governmental and Community Activity.

In regard to forensic psychiatry, it is stated that variable use is being made of child psychiatric services for juvenile delinquents. Similarly, relatively little use is being made of psychiatry for the development of services to courts, prisons and probation work. In regard to other State government departments, we read that education departments are tending to enter the field of lower-grade mental deficiency, which has previously been the province of medicine. Child welfare departments have problems of mental deficiency and emotional disturbance in many of their "wards". Here there is need for much psychiatric help which is at present largely not available, though it is sought in some instances.

In regard to Commonwealth departments, reference is made again to the Repatriation Department. It is also stated that in the Commonwealth Department of Social Services an important role in relation to rehabilitation of psychiatric patients is not being fulfilled. Similarly, the Commonwealth Department of Labour and National Service has no specific policy or programme of placement of mental patients.

Reference is also made to movements among voluntary workers in all States to provide day centres for low-grade mental defectives. Attention is drawn to Australia-wide associations of professional bodies. It is pointed out that there is no Australia-wide association for mental nurses. Mental health associations exist in New South Wales, Victoria, Queensland and Tasmania, but only the Victorian and Queensland associations have recently been active.

Research.

Research, it is stated, is conspicuous by its absence, and this is declared not to be surprising, since all mental health resources are being used to maintain the services which are being given at present, inadequate as they are.

New South Wales.

Mental Hygiene Department.

1. *Legislation.*—The legislation in New South Wales is stated to be typical of the old style lunacy acts, provision being made for the admission of certified persons and management of their estates, for criminals and for voluntary boarders. There is also legislation for the licensing of private mental hospitals. There is stated to be no mental deficiency Act and no special provision for such a service. Mental defectives were found to be admitted to hospitals as "lunatics". A *Mental Defectives (Convicted Persons) Act*, 1939, makes provision for indeterminate sentences for vicious mental defectives. A few were found to be held in a prison under this Act without any special treatment. The legislation for the reception houses where a formal "court" was held is stated not to be in accord with the best interests of some psychiatric patients.

2. *Central Administration.*—The central administration is intimately interwoven in the general structure of the Health Department, the only distinct full-time personnel for the Division of Mental Hygiene being the Inspector-General and the Deputy Inspector-General. The Inspector-General has little autonomy or control of staff and was found to be concerned with small day-to-day details.

3. *Hospital and Early Treatment and Reception.*—The reception of patients into the New South Wales Mental Hygiene Department is stated, on the whole, to be "a sorry business". The only early treatment centre run by the Division was Broughton Hall, which, although listed as a neurosis hospital, took quite a large number of early psychotics. It is stated to be fulfilling an excellent function, but to be overcrowded and in need of more professional staff.

4. *General Mental Hospital Service.*—There are five mental hospitals in the metropolitan area, all of which are old type mental hospitals except Broughton Hall, which acts as an early treatment and neurosis centre. Mental defectives are housed at Peat and Milson Islands. Mentally defective children are housed at Newcastle, and the other hospitals outside Sydney are Kenmore at Goulburn, Bloomfield at Orange, and hospitals at Stockton and Morrisset in the Newcastle area. A seaside camp unit at Tomaree completes the picture.

The Darlinghurst Reception House is stated to be physically and legislatively in an unfortunate position. The buildings are described as functionally unsuitable for the purpose for which they are being used and to be cramped

and uncongenial. The maximum allowable stay of patients was 28 days, but the average stay was five days. One male and one female ward were both overcrowded when they were visited, and many patients were accommodated on the floor from time to time. This produced a pressure which was relieved by pushing patients out to mental hospitals. Courts were held twice a week by a stipendiary magistrate, and the atmosphere of these was also not congenial for psychiatric patients. It is stated that a medical officer has recently been appointed to the Reception House for administration of psychiatric first aid and better sorting out of patients; he is assisted by a daily part-time consultant psychiatrist. A small pharmacy at the Reception House was controlled by the medical officer, who also did the dispensing. The Broughton Hall Psychiatric Clinic is described as an early treatment centre, all patients entering voluntarily. About 90% of the patients paid or were eligible for hospital benefits. When it was visited, there were 233 in-patients and two or three on leave; some 1200 patients had been admitted in the previous year. The following comment is made about it:

> This hospital was well situated and could function as a very important inservice training centre as well as continue its good treatment programme. There were quite a number of medical activities which could be stepped up, but this would require the provision of more facilities and the acquisition of more trained professional staff. For a hospital of this type and function its community and professional inter-relationships were poor. It badly needed to develop a big out-patient service.

Callan Park Hospital had 1845 patients in residence, 1157 males and 688 females, 2198 patients being on the books with 178 males and 175 females on leave. There was a separate repatriation section of some 320 beds. There were four psychiatrists on the staff and two other medical officers, the total establishment being ten medical staff. There were one social worker and a part-time psychologist. There were six male occupational therapists, of whom five had done a modified occupational therapy course. The institution was found to be largely custodial and the shortage of medical staff allowed little active treatment. Self-directed patient activities were not encouraged and community participation was minimal. The recreational programme reached only a small percentage of the patients. The figures for restraint and seclusion in this hospital reflected poor general treatment attitudes, marked overcrowding, and for the female side certainly, inexperience of staff. One charge attendant had seen his ward numbers grow in twenty-one years from 50 to 100 patients with no increase in the size of the ward. The repatriation wards were smaller, but were not overcrowded, and the general standard of accommodation and the condition of patients in them were better. The main institution wards generally were in poor condition (except in the new admission ward), there were very poor pantries, and because of the overcrowding, there was inadequate dining-room and day-room space. There was no adequate provision for the storing of patients' private clothing. Hygiene facilities, especially in dormitories, were appalling, but some effort was being made to remedy this. In some dormitories, especially on the female side, floor beds were placed in between the ordinary beds with the outer boards of the floor bed under each of the two adjacent ordinary beds. Floor beds were solidly packed to such a degree that any patient wanting to go to the lavatory at night had to crawl over other patients. This situation existed in the female hospital ward. Beds were in passageways, and in the female hospital ward were on an open veranda exposed to the weather. The male hospital dormitory, which housed 115 patients, including senile dements, had a small primitive pantry, a weatherboard dormitory riddled with white ants, bare benches and forms for dining, a collapsing ceiling, no facilities for dealing with the large amount of soiled linen, disgraceful drains in the bathroom, and a dressing station consisting of a partly fenced-in veranda. The male tuberculosis ward was at the time of the visit being reconstructed from an old ward. Overcrowding here was shortly anticipated. The ward was unsatisfactory in terms of segregation, storage, facilities for treatment and lack of properly trained staff. A tuberculosis physician called once a fortnight. The comment on this hospital includes a statement that it is in an excellent position to act as one of the training hospitals for Sydney. It is stated to need a stepping up of the numbers and quality of its professional staff, especially including social workers and occupational therapists. With its large turnover of patients, an out-patient clinic seemed to be a necessity. The hospital was stated to be far too isolated from the community.

The Gladesville Mental Hospital is stated to have some of the oldest mental hospital buildings in Australia. The institution was commenced in 1839. The wards had antiquated bathing and unhygienic lavatory conditions. Day-rooms were crowded, pantries were inadequate and dining-rooms were crowded and poorly furnished; clothes storage was hopeless. The amount of money which will have to be spent on this hospital has already been mentioned in the section dealing with Australia as a whole. In the comment on the hospital it is stated that as a metropolitan hospital this centre should be of high standard medically and psychiatrically. The most urgent problem was thought probably to be the shortage and relatively poor quality of the nursing staff, and indeed of all professional staffing. At the same time it is stated that much good work was being done in the hospital, but under very unfavourable circumstances.

Parramatta Mental Hospital had 1698 patients in residence, 788 female and 910 male. With 136 males and 208 females on leave there were 2042 patients on the books. The grounds of the hospital are described as nicely kept, but overcrowding distorted the ward picture and made all ward services inadequate, not even allowing for the original custodial design of the wards. The overcrowding in the wards is described, and it is stated that a small weatherboard ward in a shocking state was being used for 18 male tuberculous patients. The administrative headquarters, although large, did not allow for enough separate offices for the use of doctors and the matron. In the comment on this hospital it is stated that it has obviously become too small for the number of patients, in terms of both bed space and services, and that this is accentuated by the poor design and maintenance of the old buildings. Professional staffing is stated to need improvement, as also do the levels of treatment.

Rydalmere Mental Hospital has 1057 patients, 489 females and 568 males. There were 30 females and 15 males on leave, making a total of 1102 patients on the books. This hospital is stated to be in poor condition and to have been made, in part at least, a dumping ground for seniles. The levels of treatment were deplorable, as were general standards of professional staffing. Everything needed improving—accommodation, staffing, treatment facilities and standards, training, extramural activities and so on.

Peat and Milson Islands were an all-male mental deficiency colony of 580 patients, with 20 on leave; 107, or 18%, of the patients were under fifteen years of age. The wards are situated on two islands in the Hawkesbury River, 25 miles from Sydney, with an additional area of 80 acres on the mainland. One medical officer was in charge, and he had the right of private practice in a limited area. Peat Island had two wards and Milson Island three. Overcrowding was in the region of 20%. Wards were large, each having 100 or more patients; they are stated to have been "unsatisfactory functionally". No pathology facilities were available and the medical officer had to act as pharmacist. There were kitchens on both islands, but the one on Milson Island is described as most unhygienic. The laundry situated on Milson Island was hopelessly inadequate. There were no special treatment facilities beyond provision for attendance to minor physical ailments, and no research was being carried out. It is stated that this colony, being a mental deficiency centre related to the Sydney area, should have an educational and training function to fulfil.

The Kenmore Mental Hospital is situated three miles from the General Post Office in the City of Goulburn. It had 1066 patients in residence, 511 male and 555 female; there were 58 patients on leave. There were four medical officers in residence, including two psychiatrists, one of whom was superintendent. The male nursing staff was up to strength, but the female staff was down 20%. The wards were not markedly overcrowded, the total overcrowding being in the region of 100 for 17 wards. Treatment was restricted by shortage of staff, but no insulin therapy was being done and physical therapy was restricted mainly to electroconvulsive therapy. It is pointed out that this hospital is the central mental hospital for a large and populous area of New South Wales. As such, it should have modern admission wards with high standards of treatment and should have an out-patient service to the area. It should have adequate numbers of properly trained professional staff with a high level of patient activity and training, both of its own staff and of community workers in the field of mental health. None of these requirements were found to be satisfied.

The Bloomfield Hospital at Orange acted as an acute admission hospital and reception house, admitting some 200 patients a year. It also served as a chronic custodial and continued-treatment centre and catered for some 60

inebriates. There were 1655 patients in residence, 800 female and 650 male,[1] and a further 93 were on trial leave. There were two psychiatrists on the staff, one being the medical superintendent; there was only one other medical officer, the establishment being six. One general practitioner assisted for one day a week. It is stated that this hospital provided an inadequate service for the community, of which it was the chief central psychiatric unit. It was thought that standards of treatment needed to be raised and facilities for this provided. There was a regrettable lack of hospital-community interaction.

The Newcastle Mental Hospital consisted in part of an institution for mentally defective children over the age of one year, as well as a reception house for the Newcastle area; the turnover was some 600 patients a year. The medical staff consisted of a superintendent with a part-time medical officer who served on two days a week. The Education Department provided three school teachers. It is stated that the reception house was run on the same lines as the Darlinghurst Reception House in Sydney and was every bit as unsatisfactory. The mental hospital (really a mental defectives' colony) was most unsatisfactory also and needed complete rebuilding.

The Morrisset Mental Hospital is the acute admission centre for the north of New South Wales. It had a large number of chronically ill patients and mental defectives and it also contained a male criminal section. There were 1287 patients on the books and 1232 patients in residence, with males and females in approximately equal proportions. The hospital is stated to be hardly fulfilling its function as a psychiatric centre for northern New South Wales; its admission facilities were poor and the general and medical psychiatric standards low. Overcrowding badly needed attention, and standards and numbers of professional staffing needed to be raised.

The Stockton Mental Hospital was originally built as a Commonwealth quarantine station and had buildings which were largely condemned in 1916; it was in a disgraceful condition, except for a nurses' home built in 1948 and two wards built in 1951. The latter were enormous and really fulfilled custodial roles; there was practically no opportunity for the giving of individual attention to patients. The hospital catered mainly for female mental defectives of all ages and for chronic female dements; there was one male workers' ward. There were 1112 patients in residence and another 24 on leave. The hospital is described as a dumping ground for females with deficient cerebral function, either existing from birth or developing late in life. It is stated to be in a very isolated position both physically and socially. The atmosphere was one of decay. Standards were extremely low and staffing, treatment, accommodation, maintenance *et cetera* were all defective.

The convalescent hostel at Tomaree, Nelson Bay, is a male convalescent centre and was originally intended as a holiday camp for chronic workers in mental hospitals. Its population had become stationary and its 86 patients were mostly employed. Fifty-one of the patients were mental defectives and chronic stationary schizophrenics. A local practitioner was on call for emergencies; he averaged one attendance per month. It is stated that this centre is very cheap to run. Many of the patients became good workers after arrival. The population "contained many chronic psychotics who could easily deteriorate and be useless as workers". For all this, they seemed to be very happy and were creatively participative in physical development. Stoller and Arscott state that review of such a centre made them wonder whether similar small centres might not enable a State to handle many of its patients in such a cheap and satisfactory way with a minimum of medical attention.

5. *Mental Deficiency Programme.*—New South Wales has no legislation to deal with mental deficiency—there is no mental deficiency programme. Adult mental defectives were found to be spread throughout all hospitals. Mentally defective children were handled only after they had reached the age of twelve months, the Child Welfare Department dealing with them before this age. On the basis of one bed per thousand of population, which is ordinarily considered essential, it is held that some 3000 beds should be available in colonies, hostels *et cetera*. Some 1200 children should be receiving education in special schools.

6. *Statistical and Financial Data, Including Future Needs.*—Overcrowding is discussed and it is stated that the present shortage for New South Wales is 3702 beds. In 1965 the figure would be 6798 beds. The present building planning is set out and it is shown that even on this basis there will be a shortage of 1848 beds in 1965. It is stated that one prime need is for proper reception facilities. Legislation is needed to bring about a reorientation to the psychiatric, as distinct from the legal, needs of patients. A reception house in the metropolitan area is certainly needed, with facilities for holding and treatment. It is believed that this could be placed in the Callan Park area, and that this reception house, with Callan Park, Broughton Hall and the newly developed psychiatric institute for teaching and research, could form a psychiatric centre of great significance to the medical life of Sydney and New South Wales. Stoller and Arscott think that the appointment of a clinical director for the Department, which has already been mooted, would help in the attainment of such an objective. They add that this would not preclude the establishment of a professor of psychiatry at the University of Sydney, located at the Royal Prince Alfred Hospital and acting in an advisory capacity to the Mental Hospitals Department. In fact, the clinical director and the professor of psychiatry "could well act in complementary support". A mental deficiency programme on the lines developed in the United Kingdom is an obvious necessity. There is also a vast need for the development of out-patient services for all mental hospitals, especially in the country, where adult and child psychiatric clinics should be organized in relation to base hospitals and to the mental hospitals themselves. This, it is stated, brings up the need for more and better trained professional staff, which is a paramount point in any developmental programme. There seemed, to the authors of the report, to be a need for the development of a strong autonomous mental hygiene central administration within the Department of Health, of sufficient strength to leave the Inspector-General and Deputy Inspector-General free for planning and general organization and free from unnecessary attention to small details. Finally, the view is expressed that the Mental Hygiene Department of New South Wales should be an important centre for psychiatric research in Australia. A first step has been taken with the appointment of an assistant technical director who would engage in electrophysiological research in a very well-equipped neurosurgical and electrophysiological centre which is being built at Callan Park Mental Hospital.

Training Facilities for Psychiatric Personnel.[1]

It is stated that undergraduate teaching consisted of twenty lectures in the fifth year to 270 students, with a refresher course of five lectures prior to the examination held at the end of that year. There were also eight demonstrations of psychotic syndromes and eight demonstrations of psychoneurotic syndromes. The course was run by a lecturer in psychiatry. At the time of the investigation by Stoller and Arscott, attempts to obtain a professor had not been successful. At the Institute of Child Health, during fifth and sixth years, as part of training in children's disorders, batches of seven to nine students were given case discussions on the total physical and psychological approach to the disability of the child. Studies were organized at the Lady Gowrie Centre, and home visits were also arranged; these were followed by group discussions on the medico-social reports produced. The effort to teach a medico-social approach at the Institute of Child Health is stated in the summary to be one of the highlights of undergraduate education in New South Wales. Post-graduate education in psychiatry has to do with the Diploma in Psychological Medicine. This would ordinarily be within the province of the Professor of Psychiatry, who would operate through a professorial unit at the Royal Prince Alfred Hospital and act as consultant to the two mental hospitals. At the time of the investigation by the two authors, this course was being supervised by two psychiatrists.

Victoria.

Mental Hygiene Department.

1. *Legislation.*—The admission, control and discharge of certified mental patients in mental hospitals, including receiving houses or wards in private mental hospitals, is carried out under the provisions of *The Principal Act*, 1928-1943. It includes provision for the criminally insane, for voluntary boarders and for repatriation patients. Several other Acts are operative. These include the *Mental Hygiene Authority Act*, 1950, and the *Mental Deficiency Act*, 1940.

2. *Central Administration.*—Under the *Mental Hygiene Authority Act* of 1950, the Mental Hygiene Department

[1] There seems to be an error about these figures. In an annexure the total for 1953 is put down as 1430.

[1] Among the other aspects of work in New South Wales which are discussed are: other State Government departments; Repatriation Department; Commonwealth Department of Labour and National Service; the psychiatric sections of general hospitals, both in-patient and out-patient; and private psychiatric services.

became a branch of the Health Department. Thus, the Secretary of the Health Department became permanent head instead of the Director of Mental Hygiene. The Secretary of the Health Department has delegated his powers to a limited degree to the Secretary of the Mental Hygiene Branch, who is also Secretary to the Authority. Subject to this basic control, the Mental Hygiene Authority, consisting of two psychiatrists and a lay member, has quite considerable autonomy with its own staff in its own building. It has its own staff section, accounts section, records section and mental deficiency section. The chairman has direct access to the Minister.

3. *Hospitals for Reception and Early Treatment.*—The Royal Park Receiving House was started early in this century with a block near Royal Park Station for 20 male and 19 female patients. The main part was built soon afterwards a mile away as a mental hospital. Recently, all the area was gazetted as a receiving house. A large number of new, pre-cut aluminium buildings were being erected and fitted out to make the unit into a good treatment, teaching and research centre in accordance with modern developments. Stoller and Arscott found that there were 184 patients in residence (the accommodation was for 205) with a turnover of 3000 per year, and a medical staff consisting of three psychiatrists, five medical officers and one half-time medical officer to run the insulin unit. It was considered that a medical staff of 50 would ultimately be required. It is stated that this unit, with its proximity to the University, has an important role to fulfil in training and research. Also, its central position makes it potentially a useful centre for bringing psychiatry into the main stream of general medicine. It was thought that there were too few beds, as pressure of beds often necessitated unnecessarily early transfers. This criticism could be overcome, however, if other early treatment centres were provided in the metropolitan area and the standard of other metropolitan mental hospitals was so raised that direct admissions became acceptable to the public. The new sections which are being built will, it is thought, allow for first-class treatment. It is considered that a hospital such as this should have an out-patient and follow-up service for its patients and for the geographical area which it served even if this was located in a neighbouring general hospital. The Pleasant View Hospital is a unit in the transition stage from a private hospital. It is administered from the Royal Park Hospital. There were 64 beds available, and 61 of them were found occupied. Admissions numbered 70 in a year, 50 of the patients being voluntary boarders. It was thought that there was room for expansion for this unit and that it was hard to devise a role for it, located as it was, beyond that which it was already carrying out. The only receiving unit outside the metropolitan area was the Ballarat Receiving House. This receiving house is situated some miles from the Ballarat Mental Hospital and is a converted private hospital in the City of Ballarat.

3. *General Mental Hospital Service.*—Besides the Royal Park Hospital, the metropolitan mental hospitals include the Mont Park Mental Hospital, Larundel Mental Hospital, Kew Mental Hospital and Sunbury Mental Hospital. The country hospitals consist of Ballarat and Ararat Mental Hospitals in western Victoria and Beechworth Mental Hospital in north-east Victoria. There are three metropolitan out-patient clinics and three mental deficiency centres, two of these in relation to Melbourne and one in western Victoria.

The Mont Park Mental Hospital handles chronic mental patients and acts as an early treatment centre and neurological and general surgical centre, and it also contains an isolation unit. There were 1402 patients in residence, 898 female and 504 male, and there were 172 patients on leave. The medical staff consisted of a medical superintendent, one psychiatrist, one surgeon and five other medical officers. The nursing staff numbered 135 female and 96 male nurses. Some of the wards were quite pleasant, but others were very overcrowded and maintenance in some wards was poor. The overcrowded wards had day-room space taken over for beds, and dining-rooms and kitchens were too small and storage space was poor. In the female admission ward 14 patients were sleeping on the floor. The male admission ward had poor bathing accommodation. The isolation ward was overcrowded, and the consequent isolation exigencies necessitated the females spreading onto the male side, and some males were kept on the veranda of the female side. The following comment is made on this hospital:

> Quite good facilities existed to make this a first-class mental hospital, if overcrowding were overcome, more accommodation were available for professional staff, more professional staff were available, administrative accommodation were centralized, and nursing shortage were countered. The general level of patient activity needed to be increased considerably. It was the main general mental hospital in the metropolitan area, and, as such, could be used for residential in-service training, and also university training, though it was ten miles from the University, and in a somewhat isolated position. However, the area around was being built up rapidly and it needed to develop a close link with this community through an out-patient programme. It could service the neighbouring general hospital, as well as tuberculosis hospitals near by. The presence of neurosurgical, neuroradiological and electrophysiological facilities, and the fact that it was in proximity to so many patients of all types, from mental defective to seniles, made it an ideal research centre.

The Larundel Mental Hospital is a new hospital built just prior to 1939, and not occupied as a mental hospital till two years ago. It is adjacent to Mont Park Hospital and half its patient load consisted of farm labourers who were functionally part of Mont Park. The new buildings were thought to be ample and capable of good use. This hospital, it is stated, is to be built up to 1000 beds. The view is expressed that it would have to be geographically regarded as complementary to Mont Park, but should be built up as a general mental hospital in its own right and should handle early as well as chronic patients. No special role has yet been assigned to Larundel, but it might well develop a role of its own.

The Bundoora Repatriation Hospital acts as a chronic mental hospital, taking the residuum of patients who have not responded to treatment at the Repatriation General Hospital. However, there was a regular discharge of patients, and besides a total of 245 in residence, 23 were on trial leave. It is stated that this hospital required a considerable amount of maintenance work to bring it up to standard. It also needs an increase of professional staffing to improve levels of patient activity. There is need for a social centre. There is a master plan to allow for this and new wards to cater for future needs. The view is expressed that the hospital could be a model for custodial units, as it is not too large and the community identification could be readily established—all the patients were ex-servicemen and numerous voluntary bodies were interested in their welfare.

The Kew Mental Hospital consists virtually of two separate institutions under one medical superintendent. One unit is the Kew Mental Hospital proper, the other is known as Kew Cottages. The two units are considered separately. The Kew Mental Hospital was operated by three medical officers as well as the medical superintendent. It had 956 patients, 492 males and 464 females; patients on leave numbered 84. There were 201 nurses, 112 male and 89 female; only 25 male and 21 female nurses were certificated. The hospital dates from 1871 and the major part of it was built in the 1880's. It was condemned prior to the 1939 war and patients were going to be transferred to Larundel. This caused it to be neglected for a long period, till recently it was decided to try to remodel it. Stoller and Arscott state that in their comments on the wards such adjectives as "dreadful", "shocking" and "appalling" were frequently used. They add that present overcrowding figures of 81 males and 76 females give no indication of the functional inefficiency of these units and the way in which essential areas have been taken over as dormitories. The primitive nature of hygienic facilities, the disposal of contaminated water and the lack of proper plumbing were all noted frequently. There was no question of looking for adequate storage space for clothing when bare necessities were so obviously lacking. The dressing station of the male hospital was a passage to the bathroom. The female hospital had five beds on an open exposed veranda for tuberculosis and post-operative patients. The "female tents" were a series of outdoor shacks of unlined timber and flywire; originally an isolation unit, they were now a ward. Nursing accommodation at the main hospital was "very fair", the so-called "new nurses' home" being over 50 years old. Administrative accommodation was pathetically inadequate and overcrowded. The kitchen was dreadful. The laundry was old-fashioned, with a bad water pressure. The store was overcrowded. Full coma insulin therapy was available to five or six male patients, but there was none for females. Electroconvulsive therapy was being given under mass conditions without due consideration of privacy. Little other psychiatric therapy was being carried out. Stoller and Arscott observe that some interesting conversion of part of the old buildings was being carried out, but they wondered whether this was desirable except as a temporary measure. It was not certain how far this present conversion would go and how long it would take. On present rate of progress, it would take a very long time and maintenance would still be a very costly process. Kitchens *et cetera*, as well as wards, had to be

considered in the reconstruction. It is stated that Kew Mental Hospital, if it was of good standard, would be the best mental hospital training centre, since it was much closer to the city and University than Mont Park and Larundel Mental Hospitals. It badly needed medical facilities and improved professional staffing. The Kew Cottages had 501 patients, 381 in care of female staff and 120 in care of male staff. Patients were admitted under certificates as idiots, but some high-grade mental defectives were admitted as overflow from other hospitals, and some because they were disturbed. The medical staff consisted of the medical superintendent from Kew, a medical officer-in-charge and a part-time medical officer. The nursing staff numbered 65 female, 13 of whom were trained, and 36 male nurses, nine of whom were trained. There were 11 wards. Overcrowding was estimated at 146, or 41%. A considerable amount of work was going on in the remodelling of these wards and some were really good. Others were very unsatisfactory with poor bathing and feeding facilities and marked overcrowding. The final comment on this unit is that it was being rapidly renovated and reconstructed and was promising to become a very good mental defectives' training colony. Already it was serving a teaching function, and would become even more of a training centre if a mental deficiency programme was drawn up. It was thought that it would be worth separating this unit administratively from the Mental Hospital. It was large enough to warrant its own administration, and having a different function from a mental hospital, needed a different outlook and a different training for its staff.

The Sunbury Mental Hospital had 1239 patients in residence, 713 female and 526 male; 169 were on trial leave and 187 patients were boarded out to the Castlemaine Old Men's Home. The hospital was overcrowded by 105 females and 77 males, an overall figure of 17%, though the real figure was probably double, as separate day-rooms had largely disappeared from the wards. Veranda space had also been utilized for dormitory space. The comment is that this hospital should be identified with its local population and have acute admissions from the area as well as providing an out-patient service. It is also stated that standards of professional staffing needed to be considerably raised and that overcrowding needed to be alleviated.

The building of the Ballarat Mental Hospital was started in the 1880's on the basis of an old reformatory building. The last ward was built round 1940. The reception house in connexion with this hospital has already been mentioned. It is described as quite a good unit. An average of 200 new cases are handled every year, the average stay being five to six weeks with a maximum stay of three months. The Ballarat Mental Hospital had 906 patients, 576 female and 330 male; 41 patients were on leave. In addition, 46 females and 31 males were boarded out to the Ballarat Benevolent Home. Overcrowding in the main institution was estimated at 45 males and 34 females, but this did not take into account day-rooms taken over for dormitories. Full coma insulin therapy for males and females was available for six to eight patients, as was also subcoma insulin therapy. A considerable amount of electroconvulsive therapy was used. Both individual and group psychotherapy was used as well as pharmacological therapy. The comment is made that this hospital was quite an active centre and was in process of further development. A need was seen for a substantial increase in professional staffing.

The Ararat Mental Hospital caters for chronic mental patients and mental defectives and also has a criminal section. Unfortunately, it has no admitting section, and it is stated as having acted in the past as a dumping ground for seniles and chronically ill patients. There were 857 patients, 554 males and 303 females, in residence, together with 50 males in the criminal ward. The nursing staff consisted of 124 males, 59 of whom were trained, and 79 females, 16 of whom were trained, and this was up to the full establishment. The female staff consisted mainly of married women and there was actually a waiting list. The overcrowding and inadequate hygienic facilities are described; in some wards, one shower and one bath were available for over 60 patients. This, fortunately, was not true of all wards, a fair proportion having been so arranged that overcrowding was not markedly noticeable. The ward for criminal mental patients was housed in the old common gaol two miles from the hospital. The accommodation was originally for 14, but 50 patients were now housed and only 23 of them were criminal mental patients. The administrative accommodation was unsatisfactory; there was not even a separate lavatory for the female staff. The kitchen was old and very overcrowded; the laundry was poorly equipped and overcrowded; and the store was too small, was not vermin-proof and was without refrigeration. There were no amenities for maintenance staff and maintenance shops were unsatisfactory. No full coma insulin therapy was being given and little other psychiatric therapy beyond maintenance electroconvulsive therapy was used. The comment is that this hospital suffered from being "at the end of the line" so far as the Mental Hygiene Department was concerned and it had built up a high proportion of chronic aments and dements. However, despite this, quite a large segment of the patient population was classified as comprising "workers", and recent extension of social activities had improved the outlook and attitudes of many of the patients. There was need for increased professional staffing, for in-service training of nurses and for increased out-patient activities, preferably in relation to already existing general hospital units. The hospital also needed to take in "acute admissions".

The mental deficiency training colony at Pleasant Creek (Stawell) handled retarded children aged sixteen years. The patients numbered 78 (59 male and 19 female), with a nursing staff of 23. The original buildings of this hospital were the old Stawell District Hospital. It is stated that this was a small, useful residential training centre for mental defectives. It was to be expanded a little, but there was insufficient room for any great expansion on the present site. With the introduction of a good mental deficiency service, this centre would assume more importance. In association with it, a diagnostic and classificatory centre could be established for the area, though such a unit might well be established nearer the centre of the city with use of the same professional staff. With this development, it would no doubt split off from Ararat and become a self-contained unit.

The Beechworth Mental Hospital had for a long time been a dumping ground for chronic mental patients and mental defectives. It exercised no admission function, although it was centrally placed in relation to a populous area. The hospital was started in the year 1880, and all the buildings except one ward of the nurses' home had been completed by the turn of the century. Patients numbered 671 (470 female and 201 male); seven females and 13 males were on leave. Overcrowding on the female side was 148, or 45%, and on the male 40, or 25%. There were three full-time medical officers, of whom the superintendent was the only qualified psychiatrist. The female nursing staff numbered 94 females, nine of whom were trained, and 68 males, 33 of whom were trained. Overcrowding reduced the functional efficiency of the wards and much day-room space had been taken over. Beds often spilled over into corridors, and in one case onto an open veranda. In some wards, one bath had to serve more than 50 patients. Electrically heated trolleys for food had been provided for all female wards, but electrical maintenance was so bad that they could not be used. There was no proper method of handling soiled linen. In the female part of the hospital, part of the ward had to be screened off for electroconvulsive therapy—a very unsatisfactory state of affairs. The comment is made that this hospital is also at the "other end of the line" in the Mental Hygiene Department. It is remarked that the considerable amount of stepping up of social activity in the hospital had resulted in an improvement in the attitudes of patients—"no mean achievement in view of the chronic nature of the patient population". It is stated that a need for increased professional staffing was obvious. The hospital should be admitting new patients from the surrounding populous parts and should be conducting out-patient and in-patient psychiatric activities from the neighbouring larger base hospitals.

4. *Mental Deficiency Programme.*—As already observed, *The Mental Deficiency Act*, which was passed in 1935, has never been proclaimed, and this was because of lack of personnel and physical facilities. Nevertheless, a mental deficiency programme has gone forward in parts. Besides the limited residential high-grade accommodation at Travancore and Stawell, patients were being admitted under the *Mental Hygiene Act* to Kew and Janefield, the latter being developed more recently than the former. Travancore is described as a very good unit which gave opportunity for experience of mental defectives, on both an out-patient and an in-patient basis. The view is expressed that the former would become more important and more widespread when a proper mental deficiency programme was introduced. The units of the Mental Hygiene Department involved in its mental deficiency programme number eight.

5. *Clinic and Community Activity.*—Stoller and Arscott found that a little out-patient activity was being carried out from country mental hospitals at the local base hospitals, but only for one session a week. Metropolitan hospitals did not run out-patient clinics in association with their hospitals. A brief description of the units comprising

out-patient centres is given. These included the Department's Observatory Clinic, the Psychiatric Clinic in Collins Street and the Children's Court Clinic.

6. *Statistical and Financial Data, Including Future Needs.*—It is pointed out that first admissions to mental hospitals have increased from around 700 to 800 in 1947 and 1948 to 1392 in 1953. First admissions to receiving houses have increased from 1000 in 1947 to 1770 in 1953. The ratio of deaths to admissions declined from around 53% to 37%, but it is thought that this might have been due largely to the increased number of admissions, though it would indicate that there were not so many seniles sent in to die as in other States. Maintenance cost had increased in five years from £658,000 to £2,996,334, almost five times as much. A steep rate of increase started in 1951. Capital works cost £53,000 in 1946 and gradually increased till 1953 when a sum of £776,000 was spent. In 1954, it is expected that £1,500,000 will be spent. Overcrowding was estimated at 1000 beds. On a basis of four per thousand ratio, a present need for 3101 new beds existed (this takes into account the 1000 beds overcrowding). In 1965, the number of beds needed would be 5589. A programme is set out to provide 5710 beds in 1965, and it is stated that approval has already been given in the building programme for 1100 beds. At the same time, it is pointed out that the mere recital of planned beds gives little idea of the principles of development.

Stoller and Arscott explain that the mental deficiency programme had been planned on the basis of an early proclamation of the *Mental Deficiency Act*. It was hoped that a Mental Deficiency Branch of the Mental Hygiene Department would be properly established. It was necessary to build two adult mental deficiency colonies of 1800 beds and an industrial training centre of some 800 beds. Farm colonies and hostels of some 50 beds each were required, and finally, 300 more beds were needed at Janefield and 400 at Kew Cottages which would be split off from the Kew Mental Hospital. Associated with such a programme it was intended to encourage activity short of hospitalization and so to develop "boarding-out" and voluntary community programmes, including subsidization of denominational homes. The authors add that no big expansion of existing mental hospitals is envisaged, but that a new mental hospital is projected for Traralgon of 1000 beds, and an industrial hospital of 800 beds for the Mornington area. Warrnambool, where some wards have already been built but not taken over, is apparently not considered suitable for more than a 500-bed hospital. The proposition to establish an industrial mental hospital is described as interesting, and it is thought that if such a unit is associated with good living conditions, it will provide an incentive towards which patients in other mental hospitals can strive.

In regard to seniles, in relation to a mental deficiency programme and to deal with so far unfulfilled means, out-patient services have been proposed to form a network through the State in such a way that ultimately no person will be further than forty miles from an out-patient clinic. This, it is stated, would utilize a regional hospital plan based primarily on the mental hospitals. Inebriates have no special unit in which they can be housed and treated, and one is needed. A Sociopath Institute of some 100 beds has been envisaged to handle them. The hope is expressed that suitable legislation would be framed to keep them there till they are capable of being released again to the community. There was a need for proclamation of special sections in the Mental Hygiene Department for inebriates. Criminal mental patients are housed under conditions which do not allow for adequate segregation. It is stated that the Prison Department intends to build a psychiatric hospital at Pentridge Gaol, and this, it is thought, could receive some help from the Mental Hygiene Department.

Improved staffing will be required. The medical establishment at present is 108, but less than 70 are employed and this includes relatively few experienced psychiatrists. It is thought that with a full mental deficiency programme in operation, another ten will be required, and that in ten years 120 doctors will be working to deal with the developing programme.

Other Government Departments.

The Child Welfare Department is considered together with the mental defectives and the delinquents which it has to handle. There is among the delinquents a mental deficiency aspect. Mention is also made of the handling of the feeble-minded in the Education Department. There has been a considerable service of opportunity grades for the educable feeble-minded with an intelligence quotient of 60 to 70, though this service has been by no means complete. The below 60 intelligence quotient group have been catered for only in small part by special schools. A plan has been formed to provide a day school at Croxton, which has a farm of 70 to 80 acres at which cookery and manual arts will be taught. The Education Department has not been able to run its own psychiatric clinics, as the School Medical Service is the province of the Health Department.

In regard to the Prisons Department, the Inspector-General of Penal Establishments has recently recommended the establishment of a psychiatric clinic as part of the hospital unit within the Prisons Department. At present, psychiatrists from the Mental Hygiene Department are occasionally called in, in an advisory capacity, by the Crown Law Department, but the Prisons Department has operated through government medical officers, one of whom is a trained psychiatrist. A therapeutic service has not been given, and it is estimated that some 10% of the 1300 prisoners would require some psychiatric handling. Inadequate after-care, rehabilitation and parole care have been given.

Repatriation Department.

The Repatriation Department has given a diagnostic service to a potential case load of 300,000 adult males and a therapeutic service to a proportion with psychiatric entitlement. It has operated through an out-patient service and two general hospital wards and a rehabilitation centre, and has supervised its patients committed to the care of the State Mental Hygiene Department. The activities of the Repatriation Department have been mentioned under the heading of General Services in Australia.

Department of Labour and National Service.

Stoller and Arscott were able to confirm at Central Headquarters in Melbourne that whilst psychiatric problems were present in relation to difficult employment problems no statistics were being taken out to show the extent of the problem.

Commonwealth Department of Social Services.

No definite statistics were obtainable from headquarters on the extent of psychiatric problems present in invalid pensioners.

Psychiatric Sections of General Hospitals.

The Royal Melbourne Hospital has a closed psychiatric ward for 25 patients, male and female, with two and four-room dormitories and single rooms. A second-year resident medical officer is in charge. An in-patient physician attends for two sessions a week. In the twelve months reviewed by Stoller and Arscott, 361 patients had been through the ward, and of these 43 had been transferred to the Royal Park Receiving House. At the Alfred Hospital, one ward was used for both dermatology and psychiatry. The ward is an old converted army hut, and an average of nine psychiatric patients were resident throughout the year investigated by the authors. The length of stay averaged 27 days. Of the nine patients, six were usually female. Full coma insulin therapy was conducted in the same bay as that used by skin patients, screened off by curtains. Electroconvulsive therapy was given in beds surrounded by screens. Leucotomy was performed at infrequent intervals. At Prince Henry Hospital two male and two female beds were available to the honorary psychiatrist. At Saint Vincent's Hospital, which is a teaching hospital, no in-patient beds were specifically available for psychiatry. Out-patient services are conducted at the Royal Melbourne Hospital, the Alfred Hospital, Saint Vincent's Hospital and Prince Henry's Hospital. At the Royal Children's Hospital, a comprehensive psychiatric clinic for children is run, and with it has been incorporated a speech therapy and audiometry unit.

Private Psychiatric Services.

The private practice of psychiatry was found to be better developed in Victoria than in any other State. Some 24 doctors were engaged in specialist psychiatrist practice. Chronically ill patients, including senile dements, are kept in small numbers in many small hospitals. Five of these are named. In only one of these was it possible to treat even temporarily acutely disturbed patients. The average stay in hospital was around three weeks. Some desire has been expressed for intermediate beds through which private psychiatrists could follow their disturbed patients.

The Talbot Colony for Epileptics is described as the only one of its kind in Australia. A government grant has covered 75% of maintenance and capital works. Hospital benefits have been received for patients, and private charges are made when possible. The authors state that the colony could accommodate around 138 patients, but was running at

98 to 100. Accommodation was occupied by 42 men, 39 women and 19 children under the age of sixteen years. The general accommodation and living standards were good, and the cost per bed was £315 *per annum*.

Training Facilities for Psychiatric Personnel.

Undergraduate teaching at the Royal Melbourne, the Alfred, Saint Vincent's and Prince Henry's Hospitals and at the Royal Park Receiving House is described. In the sphere of post-graduate education, the University of Melbourne has established a two-year course for a diploma in psychological medicine. The view is expressed that the time is apparently not ripe for the appointment of a professor of psychiatry at the University of Melbourne, but it is stated that such a need will have to be met eventually.

Summary.

Victoria is, in the view of the authors, the best equipped State in the Commonwealth, in regard to both mental health facilities and planning, but in spite of this, falls far short of desirable standards. The Authority is so constituted that it is in a good position to undertake thorough planning, but it is somewhat hampered by having to work through the Health Department, the Public Service Board and the Public Works Department. In spite of this, it had a greater degree of autonomy and achievement than that of any of the other States. It is stated that the appointment of a chief clinical officer was the first step in the development of training programmes for staff and for the integration of training, treatment and research activities with the University, the general hospitals and the community at large. The most urgent need for the Department is stated to be to obtain and train sufficient numbers of suitable professional workers. The raising of standards should help recruiting and in-service training would help to keep them.

Queensland.

Mental Hygiene Department.

1. *Legislation.*—All previous lunacy legislation was replaced by the *Mental Hygiene Act*, 1938, which makes provision for voluntary, temporary and certified mental patients. The *Prisons Act*, Section 52, allows for criminally mentally sick patients to be held in mental hospitals. The *Criminal Code Amendment Act*, 1945, makes it obligatory in certain cases to seek psychiatric help directly or through the Supreme Court. The *Backward Persons Act*, 1938, has not been proclaimed. This Act reproduces the treatment machinery of the *Mental Hygiene Act* of 1938 and allows for (*a*) the establishment of a clinic (this has already been established), (*b*) the registration of mental defectives, (*c*) the conferring of power to make surveys and (*d*) the arrangement of any accommodation considered desirable. The *Inebriates Act* provides for the committal to Marburg Inebriates' Home. Patients can enter mental hospitals on a voluntary basis. The Epileptic Home at Toowoomba is registered under the *Charitable Institutions Act*.

2. *Central Administration.*—The Director of Mental Hygiene and Director of Psychiatry, as his title implies, has a dual role. He is responsible to the Director-General of Health and Medical Services and thence to the Under Secretary and so to the Minister.

3. *Hospitals for Reception and Early Treatment.*—There are no hospitals for reception and early treatment within the Mental Hygiene Department of Queensland. This was one of the functions of the Goodna Mental Hospital.

4. *General Mental Hospital Service.*—Three mental hospitals operate within eighty miles of Brisbane. A new hospital is due to commence operations at Charters Towers. The Goodna Mental Hospital, the main mental hospital for Queensland, functions as an admission hospital, a chronic mental hospital, a centre for adult mental defectives and an inebriates' institution. It contains a separate repatriation hospital, and also holds repatriation patients in the main institution. The original buildings date from 1860 and most of the older wards were built around 1893-1895. Another group of wards was built in 1916 and again in 1935. A new block was built during the 1939-1945 war. The main hospital contained 2403 patients (1214 females and 1189 males). There were 100 females and 51 males on leave. In addition, the Repatriation Hospital contained 101 patients with 10 on leave. There were a medical superintendent and six other medical officers—two short of establishment. None of these officers had full psychiatric qualifications. In the main institution there were 28 wards of varying size and functional efficiency. Overcrowding for the institution was 909, but with day-room space taken over for dormitories this really represented a figure of 1173, or an overcrowding percentage of 95. Certain of the wards were very poorly maintained. The overcrowding commonly led to beds being placed down corridors and into bathroom space, and in some cases beds spilt over into dining rooms, and floor beds were so placed between other beds that patients getting out of bed had to step on floor beds. Even a new ward, built during the war, had become so overcrowded as to lose the functional pattern for which it was designed. In this ward lockers were provided originally, but had been removed to make way for more beds. In one ward, many old ladies lived in chairs in the centre of the dormitory and never got out, being fed on the spot. In this ward, too, there was one shower for 125 senile and infirm patients. Pantries and scullieries were, in many wards, grossly insufficient, and furniture and dining-rooms were often bare; chipped enamel plates and mugs were the eating utensils. Eight female tuberculous patients were put in a closed veranda on the hospital wards, and there was no evidence even of the proper separation of crockery. Thirty male tuberculous patients were in a ward of 53, and no adequate protective measures were taken. However, despite all these gross handicaps, an effort was being made to maintain a fair level of treatment. A new convalescent, self-supporting block was coming into operation through the conversion of a common female bathroom. There was an operating theatre suite, which was quite frequently used, though no psychosurgery was being done. Twelve patients were having full coma insulin therapy at the time when the hospital was visited, but beyond electroconvulsive therapy, little other therapy was carried out. Occupational therapy was being quite extensively used, 865 patients being engaged in some form of employment. The view is expressed that there is a good case for the division of this institution into separately administered units, such as a mental defectives' unit, a repatriation unit, an admission unit, a geriatric unit and a general mental hospital. The hospital is thought to be too far out to be part of the stream of general medicine in Brisbane, but the view is expressed that with its facilities, it could act as a residential training centre for doctors, nurses and so on, and could be complementary to central neuropsychiatric facilities in Brisbane. It was too far out to engage in much out-patient activity.

The Toowoomba Mental Hospital building was commenced in 1890. Further building took place in 1900, and none has been carried out since 1923. The hospital deals with acute admissions, inebriates and criminals, as well as with mental defectives and chronic mental patients. The patients in residence numbered 1254 (640 male and 614 female). There were 35 on leave. Of the patients in one year 56% had been admitted as voluntary boarders, and it is thought that this was the result of the service given by mental hospital doctors to the Toowoomba General Hospital staff. The medical staff of the Toowoomba Mental Hospital consisted of a medical superintendent and two other medical officers, none of whom were qualified as psychiatrists. The hospital was overcrowded to the extent of 150, or 30%, on the male side, and 50, or 10%, on the female side. Maintenance of the wards generally was poor. One female ward contained ten juvenile mentally defective males. Another was in a shocking state, with no day-room other than an outdoor shelter with a fireplace. Patients used chipped enamel mugs. There was practically no space for the hanging of private clothes. Full coma insulin therapy and some subcoma insulin therapy were being given, as well as a fair amount of electroconvulsive therapy. Some psychotherapy was also being tried, as well as other forms of treatment, including prolonged narcosis and Alcoholics Anonymous. In spite of the disheartening description given of this institution, the comment is made that it is developing into quite a useful centre and is being integrated with medical activity and community outlook in Toowoomba. Its function is stated to be to serve the regional area in which it is located in all aspects of mental health, treatment, training and community education.

The Ipswich Mental Hospital acts as a criminal mental hospital and also handles mental defectives and "chronic mental patients". It was originally the Benevolent Asylum of Queensland. It contained 575 patients (367 male and 208 female, with five on leave). There was only one medical officer. The wards were grossly overcrowded to an estimated extent of 90%. For instance, an 80-bed ward was found to be holding 158 patients, an original 16-bed ward had 60 patients, and so on. The hospital was custodial in outlook and had an undue percentage of chronic patients. The view is expressed that medical and other staffing needed to be increased so that this hospital could give an out-patient service to Ipswich and the surrounding area, from either the mental or the general hospital. It could take admissions

from near by and so improve the quality of medical work and integrate its activities with local community needs.

The Charters Towers Mental Hospital has been planned to hold 500 patients. It had not been officially opened, and the authors of the report only examined the plans of the hospital. They state that modern trends were incorporated in these. The authors wonder whether it would not have been better to locate the hospital in Townsville. They think that the sin of isolation may be perpetuated.

The Epileptic Home at Toowoomba is an institution of the Department of Health and Home Affairs, but is supervised by the Mental Hygiene Department through the superintendent of the Toowoomba Mental Hospital. It had 109 patients in residence (49 male and 60 female, of whom 14 were under fifteen years of age, the rest being between sixteen and sixty-five years of age). Conditions in this hospital were good. There were four 20-bed wards with thirty-one patients sleeping on verandas.

5. *Mental Deficiency Programme.*—The Mental Hygiene Department has no special hospital for mental defectives, which were found to be scattered through all mental hospitals and throughout the community. The *Backward Persons Act*, 1938, had not been proclaimed, and only one of its provisions, the establishment of a clinic, had come about. The clinic, however, did not cater specially for mental defectives.

6. *Clinic and Community Activities.*—The Mental Hygiene Department runs a central psychiatric clinic. The Director of Mental Hygiene was in charge of this and spent half his time there. Medical assistance was given by five medical officers from Goodna Hospital and by a private psychiatrist. The clinic was handling some 650 patients per year.

7. *Statistical and Financial Data, Including Needs.*—If overcrowding in Queensland mental hospitals has to be overcome, 1653 beds will have to be provided. By 1965, on the basis of four beds per thousand, an additional 1440 beds will be required. This necessitates a building programme by 1965 of 3093 beds. Provision has been made in planning for 2610 beds (the numbers are set out in a detailed list), but only 260 so far have been approved at the Brisbane Mental Hospital and at Charters Towers. The planning thus leaves the programme short of 483 beds which will be needed by 1965. The cost of providing the 3093 beds needed in Queensland would be in the region of £8,625,000 in the next ten years. One of the great needs in Queensland is stated to be an early reception and treatment centre in close relation to Brisbane, within the general stream of medicine, and related to the University. There is a great need to develop trained personnel, and this would facilitate the process. There is also a great need for the development of interim training programmes for much-wanted professional staff or for the organization of fellowships so that personnel could go to other centres where training was going on. The statement is emphasized that there were no mental hygiene psychiatrists with post-graduate qualifications in Queensland, though some were registered as specialists in Queensland.[1]

Other State Government Departments.

Mention is made of the fact that the Brisbane General Hospital and the Townsville General Hospital run reception wards which are licensed under the *Mental Hygiene Act*.

The Education Department has a research and guidance section which includes in its activities a clinical problem unit in which emotional problems of children are handled.

A service to prisons and courts is given by the Brisbane Psychiatric Clinic. Mention has been made of the criminal mental ward at the Ipswich Mental Hospital.

Summary.

It is stated under the heading "summary" that there is in Queensland a need to decentralize mental health activities. Brisbane Mental Hospital is too large, and it could well be split into several different units, each with its own function with personnel developing skills accordingly. Decentralization, through hospitals based on Brisbane, Toowoomba, Rockhampton and Townsville, should be basic in future planning. A mental deficiency programme needs to be developed. The Mental Hygiene Department also needs to overcome its isolationism. The State Psychiatric Clinic was of help, but there was said to be a need for an institute of psychiatry in association with the University, and this has already been projected. Such a body would aid as a teaching centre for all workers in the mental health field. The view is expressed that the standard of psychiatry in the Mental Hygiene Department needs to be raised. The Director of Mental Hygiene is stated to have appeared to be fully aware of the needs of his State, and the opinion is expressed that his planning has been sound.

[1] This must refer to departmental officers only.

South Australia.

Mental Hygiene Department.

1. *Legislation.*—The main Act in South Australia is the *Mental Defectives Act*, 1935-1953. Mental defectives in South Australia include persons of unsound mind, persons mentally infirm, and imbeciles, all of which terms are legally defined. There is no special legislation for mentally retarded persons, called "mentally defective" in most English-speaking countries. The Act provides only for the admission to mental hospital of idiots and imbeciles. The Act provided for voluntary boarders in 1913 and for the licensing of private mental homes in 1939. Section 77 of the *Criminal Law Consolidation Act*, dealing with the admission of sexual offenders, came into operation in 1940. A judge may seek the help of two medical practitioners in regard to placement in an institution. The Governor usually orders the subject to Parkside and the patient is discharged through him also. Stoller and Arscott state that two inebriate Acts existed, but are for all practical purposes defunct. New legislation is to be sought. In South Australia mental hospitals admit chronic inebriates as voluntary boarders or under certification.

2. *Central Administration.*—The Director-General of Medical Services is the head of the Hospitals Department, responsible to the Chief Secretary and the Minister of Health. The Superintendent of Mental Institutions is in charge of the two mental hospitals and the receiving house, and is responsible to the Director-General. The opinion is expressed that the title "Superintendent of Mental Institutions" is unfortunate and not in accordance with similar responsibilities in other States. In South Australia, the Superintendent of Mental Institutions is equivalent to the Inspector-General of Mental Hygiene elsewhere, but does not function as in other States, as he actively superintends the two mental hospitals and receiving house of the Mental Hospitals Department. He does this with the aid of deputy medical superintendents. All central administration is run from Parkside Mental Hospital, the administrator of which functions in a dual role, and there is no physical representation in the Health Department itself, which is situated three miles away. There are two licensed private hospitals in South Australia.

3. *Hospitals for Reception and Early Treatment.*—Both Parkside and Northfield Mental Hospitals admit patients direct and engage in the treatment of those with early mental conditions, but the main mass of the work is done at Enfield Receiving House. This is the main acute admission, early treatment and reception centre for mental hospitals in South Australia. It is situated some seven to eight miles from Adelaide. The in-patients numbered 87 and there were two male and two female receiving wards; 32 patients were on trial leave. About 1000 patients are admitted to Enfield Receiving House every year and the average stay is one month. There is no organized out-patient service. It is stated that this hospital could be developed as a training centre for staff and as a training centre for community workers in the field of mental health. More accommodation is needed for physical and social therapy and for out-patient activities. A new ward for an additional 30 patients has been projected.

4. *General Mental Hospital Service.*—The Parkside Mental Hospital acts as an admission hospital and an acute treatment hospital, and also handles chronic psychotics, mental defectives and criminals. When it was visited, it had 1702 patients (914 female and 788 male); 87 patients were on leave. The medical staff consisted of the Superintendent of Mental Institutions, who also acted as medical superintendent, one other psychiatrist and three medical officers. There were 145 female nurses and 126 male, of whom only 76 and 30 respectively were trained. The original buildings in this hospital were erected about 1875 and constitute a typical Kirkbride type of institution. It was obvious that patient population had far outstripped remodelling and any new building since. Overcrowding, on a conservative estimate, was 35% on the male side and 30% on the female side. It was impossible to ascertain the real overcrowding figure, as wards had had to be altered so much and encroachment had been made on day-room and dining-room space. An indication of the poorness of facilities is shown in the fact that tuberculous patients in the male ward slept at the end of a corridor and had to use lavatory accommodation common to others. There was a gross inadequacy of hygiene facilities in most wards, with one bath and one shower serving 80

to 100 patients in some cases, and lavatory facilities often very primitive. There were four main dining-rooms and three of these were also used as day-rooms. Conditions were not good and the method of serving food was unsatisfactory. Nursing accommodation was not good, some 34 females being resident, but a new nurses' home for 80 was almost complete. Full coma insulin therapy was not being given, but electroconvulsive therapy was used. No formal individual or group psychotherapy was organized. During the past few years about ten patients a year have been subjected to psychosurgery. The comment is made that this hospital is in an excellent position to serve the population of Adelaide and that it could easily become a more vital centre in the medical service of South Australia. Of prime importance was the need to cut down overcrowding and to step up the levels of psychiatric treatment, including social therapy and individual and group psychotherapy. An out-patient clinic was a vital necessity. It is felt that this hospital could become a training centre for professional staff and for community education. It is close enough to the University to be the obvious mental health research centre in South Australia if its resources were developed.

The Northfield Mental Hospital had 853 patients (522 male and 331 female); 60 patients were on leave. The hospital handles acute recent admissions as well as private patients; it has a repatriation block of two wards. When it was visited, a new tuberculosis ward for 60 females was under construction. The hospital was grossly overcrowded over what was originally intended, 90% on the female side and 50% on the male side. The medical staff consisted of the Medical Superintendent of Mental Institutions, who also acted as medical superintendent, a deputy medical superintendent (a psychiatrist) and three junior medical officers. There were 56 female nurses and 60 male nurses, only nine of the former being trained and 30 of the latter. Because of the overcrowding, ward facilities were very strained, even though the original design was very generous. Insulin coma therapy was being given to eight males and females. One electroconvulsive therapy apparatus only was available. Some individual and group psychotherapy was being done. The comment is made that this hospital had not yet developed an entity of its own, but had exercised a mixed role devised largely on a custodial pattern. It is thought that the establishment of a tuberculosis ward, senile blocks and mental deficiency blocks might still further "affect the lack of definition of role". This hospital was situated in an increasing centre of population, and if more closely integrated with the community might easily become the mental health centre for the northern suburbs of Adelaide.

4. *Mental Deficiency Programmes.*—There was no special legislation for the mentally subnormal and no service for mental defectives in the Hospitals Department. The authors state that a first step has been taken in regard to mentally defective children in the planning of 100 beds in two wards for the Northfield Mental Hospital. The Superintendent of Mental Institutions informed the authors that some years previously it had been decided to build within the next ten years a mental deficiency hospital within a few miles of Adelaide, and to set up a diagnostic and therapeutic out-patient unit for mental defectives in Adelaide, the hospital and out-patient centre to act as one unit.

5. *Subsidized Community Programmes.*—The only subsidized activity of the South Australian Government in the field of mental health is in relation to Minda—a home for mentally defective children. It has been subsidized to the extent of £5000 *per annum*, but most of its funds have come from subscriptions and bequests.

6. *Statistical and Financial Data, Including Future Needs.*—Provision has been made for a projected 470 beds, and it is estimated by the State that this number would cost £1,009,000. It is also estimated that a further 1351 beds will be required by 1965 to allow for new patients and to catch up on overcrowding. This means that a further £4,053,000 would be needed. This makes a total budget requirement for beds of £5,062,000. This amount does not take into consideration increased expenditure due to other items.

Other State Government Departments.

In regard to the Child Welfare Department, it is stated that there may have been subnormals in institutions under the care of the Department, but that no clear evidence could be elicited except that there was a field for psychological investigation and treatment of children which was not being adequately covered.

The Education Department ran a psychological clinic which handled emotional and learning problems of children. In 1953, an occupational centre was opened at Kenttown for twelve children whose intelligence quotient was 55. It was proposed to increase the number of children to 40 or 50. Training was directed to teaching simple practical abilities, but the authors state that this barely touches the community problem.

In regard to the Prisons Department and the Children's Court, no psychiatric service was found available for them.

Psychiatric Sections of General Hospitals.

Apart from the facilities at the Repatriation General Hospital at Springbank, no in-patient beds were found to be available in general hospitals in Adelaide. An occasional in-patient bed could be used by the honorary psychiatrists of the Children's Hospital.

In regard to out-patient treatment, psychiatric sessions were held at the Royal Adelaide Hospital and a good child psychiatry department was in existence at the Children's Hospital; it also handled speech therapy.

Training Facilities for Psychiatric Personnel.

On the medical side, training for undergraduates and post-graduates is mentioned. The lectures and demonstrations given to undergraduates are named, and it is stated that for post-graduates a good course of 60 lecture-demonstrations, sponsored and paid for by the Government, was in operation through the Superintendent of Mental Institutions. The authors report that it was felt that a diploma in psychological medicine could not be arranged for Adelaide. Medical officers in mental hospitals apparently can obtain six months' special leave on full pay and can go to Melbourne to fill in the parts of the diploma course lacking in Adelaide. The authors think it possible for a course to be organized in Adelaide, though it would be a very great strain on the limited sources available, especially on the time of specialist private practitioners. These resources, they think, could be increased by an improvement in mental hospital standards.

Summary.

In the summary on South Australia, it is stated that the State has been relatively backward in its psychiatric development. The only psychiatry of any consequence until the post-war period was purely mental hospital psychiatry, and this was very isolationist. Since the war, private psychiatry has advanced a good deal and is beginning to make an impression on general medicine. The authors state that quite a considerable portion of the early treatment of psychotics is handled by private practitioners. These practitioners, however, lack the facilities available in general hospitals, and we read that it is hard to imagine that there will be any marked step forward until the University has developed a strong social sciences division, and more psychiatric training is put into the medical curriculum. The new Professor of Medicine is stated to be well aware of this need. The present needs are the development of a distinct mental deficiency service, a special service for criminals, a service for alcoholics and a programme for the aged. Finally, there is need for a central health division located with the Department of Health to plan in terms of overall mental health and to integrate its activities with any local health programme.

Western Australia.

Mental Hospitals Department.

1. *Legislation.*—At the time of the investigation by Stoller and Arscott, the legislation in Western Australia was covered by three Acts—the *Lunacy Act*, 1903-1950, the *Mental Treatment Act*, 1927-1941, and the *Inebriates Act*, 1912-1919. They were informed by the Inspector-General of Mental Hospitals that he was reviewing the first draft of a mental health bill which would shortly be introduced. It was stated to be based on the Act in Northern Ireland.

2. *Central Administration.*—The Mental Hospitals Department in Western Australia is under the care of the Inspector-General of Mental Hospitals. He is directly responsible to the Under Secretary for Health and through him to the Minister. The Mental Hospitals Department's central administration is located at the Claremont Mental Hospital. The authors learned that the Inspector-General was concerned with planning and had numerous statutory duties to perform. He visited institutions regularly.

3. *Hospitals for Reception and Early Treatment.*—The Department's hospital for early treatment and reception was Heathcote, which functioned for the *Medical Treatment Act*, 1927. Through it, a large number of patients avoid certification to the mental hospitals. The medical staff was found to consist of a medical superintendent and three

full-time and one part-time medical officers. The nursing staff consisted of 34 female and 20 male nurses; only five females and 13 males were certificated. There were 121 patients in residence (the bed state was one to eight; 85 patients were on leave). There was no official out-patient clinic, but an average of almost 20 patients per week, old and new, were seen by the medical staff. The wards were found to be functioning quite well and there was not a great deal of overcrowding. Eight patients were constantly on full coma insulin, and two to three on subcoma insulin, therapy. Electroconvulsive therapy was consistently used. The comment on this institution is that it was doing an excellent job for the community in keeping people out of the chronic mental hospitals. Although the cost was high (£11 14s. 6d. per week), its cost was certainly justified by results. It is thought that the institution might be developed further as a training centre, both for professional personnel and for community workers in the field of mental health. It should also be developed as an out-patient centre for the southern suburbs of Perth and for Fremantle.

4. *General Mental Hospital Service.*—General mental hospital service was found to be given through the following five units: Claremont Mental Hospital, Lemnos Soldiers' Home (a hospital of 100 beds for ex-servicemen), Whitby Falls (a farm colony for 44 males), Greenplace (a small centre for 24 females, including four inebriates), the Nathaniel Harper Home (for 45 mental defectives). Of these, only the Claremont Mental Hospital will be discussed. It is stated that this hospital fulfils many functions. It is mainly a hospital for chronic mental patients. It has an admission ward, a tuberculosis ward for males and females and a ward for senile females. It houses inebriates, criminals and mental defectives and has a special section for 1939 war ex-servicemen. It was found that there were 1498 patients in residence (826 males and 772 females); only three were on trial leave. Overcrowding was estimated to be 20% on the male side and 35% on the female side. The medical staff consisted of a psychiatrist-superintendent, a deputy medical superintendent (who also superintended Lemnos and Whitby Falls and Greenplace), and three other medical officers. The nursing staff consisted of 181 males, of whom 60 were certificated, and 97 females, of whom 17 were certificated. The female nursing staff was some 30% below strength. Most wards on the male side were in very poor condition in contrast to the female side. However, overcrowding reduced the efficiency of ward services, and day-rooms had been largely taken over for dormitories, and dining-rooms had also become day-rooms. Storage space for the hanging of private clothing was virtually non-existent. In the male hospital and in the admission ward were broken hand basins which had not been replaced for five years. A new tuberculosis ward for 54 males and for 28 females had just been completed when the authors visited the hospital, and also a 75-bed female ward for seniles, with hospital convalescent and chronic sections. There was little in the way of psychiatric therapy beyond electroconvulsive therapy. Patients with surgical conditions were sent to the Royal Perth Hospital. No medical or surgical specialists were on call, though arrangements had been made for a neurologist to start. The comment is that this hospital has potentialities for training which are enhanced by its proximity to the University and to the future medical school. It was thought that there was need for a raising of standards of treatment and for programmes of community education designed to overcome the isolation of the mental hospital, which was a real thing in Western Australia. A raising of the standard of medical services and of medical and ancillary staff establishments would bring it more into favour and integrate the hospital activities more with those of general medicine.

5. *Mental Deficiency Programmes.*—The authors found that there was no separate Act for mental defectives and no separate organization. Apparently it was realized that there should be a central diagnostic and treatment clinic for children in relation to the Perth Hospital area and that this would obviously include mental defectives. It appeared that no separate mental deficiency service was yet contemplated.

6. *Statistical and Financial Data, Including Future Needs.*—Apparently the Inspector-General was looking a long way ahead, because we read that he estimated his requirements up to the year 1974 as 2340 additional beds. Provision had been made for 2408 new beds. It is stated that on this basis, the Inspector-General covered his estimate of bed needs for 1974. However, this fell some 600 short of the estimate made by Stoller and Arscott and did not allow for the present overcrowding. The authors found that negotiations were in progress, or had just been completed, for a site of 13 acres outside Mount Lawley for a children's in-patient centre and over 600 acres at Guildford for a new mental hospital.

Other State Government Developments.

The Child Guidance Clinic, which was founded in 1950, is not under the supervisory control of the Inspector-General for Mental Hospitals; apparently it runs, for all practical purposes, as a separate unit.

The Child Welfare Department has a reception home where wards of State are housed pending distribution to suitable agencies. It was found to hold approximately 40 patients and was used both as a remand home and as a clearing house, without proper facilities for segregation.

It was found that the Education Department of Western Australia had entered strongly into the field of the grossly defective child, and aimed at educating it to be self-supporting, even at a reduced level. The Education Department Guidance Section consisted of 20 officers, major graduates in psychology, who were concerned with educational guidance, vocational guidance and social guidance. The social guidance involved the handling of problem children.

In regard to the Prisons Department, it is stated that the Mental Hospitals Department gave advice to courts and prisons, to the extent of some 35 or 40 cases a year. No therapeutic service was given.

The Children's Court used the Mental Hospitals Department's Child Guidance Clinic for some psychiatric investigations.

Psychiatric Sections of General Hospitals.

At the time of investigation there were no in-patient beds in any public general hospital in Western Australia. Two out-patient sessions a week were held at the Royal Perth Hospital and at Fremantle; they were run by honorary psychiatrists. Ordinary out-patient consulting rooms were used and no special facilities were provided. The numbers of patients seen were too large to allow for effective handling.

Training Facilities for Psychiatric Personnel.

On the medical side, since there was no medical school, the Mental Hospitals Department was subsidizing its medical officers to the tune of £500 *per annum* for two years to enable them to go to Melbourne in order to obtain a post-graduate qualification; they entered into a bond to return to the Department for two years.

Summary.

In the summary on Western Australia, it is stated that the State was found to be backward from the psychiatric point of view. As a corollary of this, the strong psychology group at the University had felt itself compelled to enter the clinical field and had done so to a greater extent than anywhere else. The strong psychology section in the Education Department had moved forward into an area traditionally accepted as medical—the field of low-grade mental deficiency. Similarly, a fair section of private psychiatric practice was within the province of the lay psychologist. The statement is made that whilst psychiatry was not favourably regarded by other branches of the medical profession in Western Australia, there were signs of a forward move as instanced by the development of the Repatriation Psychiatric Service. It is stated that the Director of Clinical Research at the Royal Perth Hospital had recently analysed his out-patient load and had classified 40% of this as psychiatric. Further, a recent survey of geriatric problems had shown the need for integration with psychiatrists. The Director of Clinical Research had stated that he would welcome a stronger psychiatric section in the Royal Perth Hospital in order to influence medical teaching. He had held that certainly the new medical school, if and when it was established, would need this help. Stoller and Arscott see an urgent need for the Mental Hospitals Department to establish out-patient services, both in relation to its hospitals and centrally in Perth and Fremantle, preferably in association with the general hospitals. One of the first considerations, in their opinion, is to relieve overcrowding in Claremont and to build new units to meet present and future needs. The excellent work being done at Heathcote is commended. The view is expressed that the central administration would be better away from Claremont. It should be brought more closely into relationship with the public health field and should therefore be centrally placed within the Health Department.

Tasmania.

Mental Hygiene Department.

1. *Legislation.*—Four relevant Acts are operative in Tasmania, as follows: *The Mental Hospitals Act, The Mental Deficiency Act, The Inebriates Hospitals Act,* the *Sexual Offences Act. The Mental Hospitals Act* makes provision for lunatics, idiots and criminal lunatics; it makes provision also for voluntary boarders. *The Mental Deficiency Act* is based on the English Act of 1913, and provides for the ascertainment of mental defectives by the State Psychological Clinic and for control by a mental deficiency board. Mental defectives can be placed in an institution, under guardianship, or under supervision. Some of them are allowed to earn whilst under supervision. The Lachlan Park Mental Hospital is gazetted as an inebriates' hospital. Inebriates have to be committed by a court, and the maximum period of detention is three months, but the court may extend the period further. The *Sexual Offences Act* had not, at the time of investigation, been brought into action, as no institution was available for treatment.

2. *Central Administration.*—The Division of Mental Hygiene is one of the departments of the State Health Department and is under the medical control of the Director-General of Medical Services. Although he is under the Director-General, the Director of Mental Hygiene virtually acts autonomously.

3. *Hospitals for Reception and Early Treatment.*—No receiving houses were found to be in operation.

Millbrook Rise is an early treatment centre. Although it is run by the Mental Hygiene Department, it functions as an early treatment centre for voluntary psychotic and neurotic patients. Fees are collected and hospital benefits are payable to patients. It was found that there was accommodation in this "very excellent institution" for 50 patients, but only 25 beds were in use, 12 on the male side and 13 on the female side. There was a matron with nine other female members of the nursing staff; one of the members of the nursing staff had been mentally, and two had been generally, trained. The turnover of patients was 180 in the current year. The opinion is expressed that this centre should function at full capacity. In the present state of shortage of beds for mental patients, it seemed wrong to the authors of this report, that this excellent unit should be functioning at such a low level. The excuse given was shortage of medical staff, and Stoller and Arscott agree that it requires two medical officers. However, they thought that it could take more psychotic patients and relieve Lachlan Park, but this would mean acceptance of an alteration of function. It was thought that Millbrook Rise was isolated from Hobart, and that this was a great disadvantage in the integration of its function with the needs of the community.

4. *General Mental Hospital Service.*—There is only one mental hospital in Tasmania, the Lachlan Park Mental Hospital. This hospital was found to house 824 patients (412 female, 363 male and 49 male mental defectives); 88 females and 73 males were on trial leave. The hospital handled acute admissions, dealt with mental defectives (these were regarded as belonging to a separate institution in the statistics), and also criminally insane, inebriates and chronically ill mental patients. There was no fully qualified psychiatrist on the medical staff, which consisted of three. The nursing staff numbered 82 females and 94 males; 40 of the males and 24 of the females held certificates. The oldest ward in the institution dated from the year 1850, and much of the institution was in the vicinity of 100 years of age. Some building had taken place in 1935 and a little remodelling with additions around the turn of the century. A large part of the institution was hopelessly out of date and unusable as a mental hospital. A start had been made to build an entirely new separate hospital, to eliminate unsuitable buildings and to use the other buildings of the old institution as a mental defectives' colony. Overcrowding was estimated to be 58 (7%) on dormitory floor space, but day-rooms had been taken over for the purpose with the result that patients lived under crowded conditions during the day. One ward had very little day-room space and patients were placed around a caged fire in the open airing court. Certain parts of the hospital, it is stated, could only be described as appalling and maintenance as shocking. Male and female tuberculous patients were housed on parts of wired-in verandas with canvas blinds. The female hospital ward was an absolute hotchpotch of addition and remodelling and was unsuitable as a place to which to bring newly admitted patients. Straw mattresses were used and eating utensils were very bad. Full coma and subcoma insulin therapy was being carried out in the male and female hospital wards up to a total of 26; in 66% full coma was used. Electroconvulsive therapy was being carried out alone, and combined with insulin therapy. The only extramural activity was attendance of the medical superintendent for one out-patient clinic session at the Royal Hobart Hospital. Some medical attention was given to casualties from the neighbouring gaol farm. In the comment on this hospital it is stated that there was a need for more well-qualified professional staff, and as facilities did not exist in Tasmania for training, it seemed that the only way to obtain professional staff was by subsidizing training and making conditions of employment attractive. It was regarded as unfortunate that the mental hospital service in Tasmania was related to New Norfolk rather than to Hobart, as it was difficult for it to remain an integral part of the stream of general medicine. However, it is thought that this isolation could be overcome by the giving of a vigorous service to general hospitals in Hobart and Launceston.

5. *Mental Deficiency Programme.*—It was found that approximately 270 mental defectives were certified under *The Mental Deficiency Act,* and of these over 100 were in government institutions, 126 were under guardianship and a few were under the supervision of a social worker. It was found that the State Psychological Clinic was concerned with the examination of all backward children referred to it and with social work amongst them. The service was thought not to be big enough to handle the extent of the problem. It is stated that an old hospital at Launceston had been acquired, and that it was intended to use it as a hostel for 25 adult defective females who were employed in the community.

6. *Statistical and Financial Data, Including Needs.*—Reference is made to the question of overloading of beds, and it is suggested that by the year 1965 an additional 739 beds will be needed. Provision has been made in planning for the establishment of a new hospital of 1000 beds, and it is stated that it is not known exactly how many beds would be lost by demolition of old buildings and how much would be lost by making wards function with adequate day-room and dining-room space. It was not expected that more than 640 beds would be fully in operation for at least five years, and therefore the establishment of the mental defectives' colony was a very long-term project. A satisfactory statement has to do with the intention to establish proper receiving wards in association with the Hobart and Launceston General Hospitals.

Other State Departments.

In connexion with the Department of Health it is pointed out that the School Medical Service plays no part in the handling of the psychiatric problems of children. A full-time psychiatrist has been appointed to the Launceston General Hospital, and he acts as psychiatrist for the northern part of Tasmania. Cosgrove Park is a new 108 bed hospital for senile patients. It is stated to be extremely well appointed and fitted with most new devices for the handling of senile, infirm and ambulatory patients.

The Child Welfare Department had some, but not a large number, of mental defectives scattered through its institutions. The Department has a delinquency home for 60 boys, the Ashley State Delinquent Home, at Deloraine, 30 miles from Launceston. A psychiatrist from Launceston visits the home once a month. There is no State institution for delinquent girls.

Psychiatric Sections of General Hospitals.

The Royal Hobart Hospital had a male section which consisted of a three-bedded ward, and included two single rooms. The whole unit was part of a general medical ward. No similar unit for females was operating. The beds were under the supervision of the visiting psychiatrist, who was a private practitioner. The average length of stay of patients in the unit was two weeks and the turnover of patients *per annum* was 180.

At the Launceston General Hospital the psychiatrist saw every psychiatric patient in the hospital. On an average, he had six to eight patients in hospital in two special sections of general medical male and female wards. These sections had not been proclaimed as a reception house. The turnover was 150 *per annum*. The aim was to keep patients for three weeks and then to treat them as out-patients.

Out-patient clinics were found to be operating at both the Royal Hobart Hospital and the Launceston General Hospital.

Summary.

In the summary on Tasmania, Stoller and Arscott state that they agree with the general policy of development of psychiatric services in Tasmania as laid down by the

Director-General of Mental Hygiene. The building of a new mental hospital was a sound and necessary step, and the conversion of the old hospital after demolition of the bed wards to a mental defectives colony was most essential. It was thought that Millbrook Rise should operate as an early treatment centre short of certification, and that it could operate more usefully if it acted as Heathcote did in Western Australia. It would require similar legislation. It was thought that while a good out-patient service was being given at Hobart and Launceston General Hospitals, an essential move forward would be the provision of adequate in-patient psychiatric units in both these hospitals.

The Territories.

A short section of the report is devoted to the Territories. In this section reference is made to the Australian Capital Territory, to Papua and New Guinea, to Norfolk Island, to Nauru and to the Northern Territory.

Conclusion.

At the end of the last section dealing with Australia as a whole, some final remarks are made. It is stated that there is much to be done (*a*) to overcome years of neglect and inertia in mental hospitals, and (*b*) to bring the standard of Australian psychiatry to a reasonable level of modern practice. Modern psychiatry is thought of and practised in relation to (*a*) a service for sick people, (*b*) a service for some social welfare problems, and (*c*) in the preventive field as a positive contribution to the total health of the community. Throughout their tour, Stoller and Arscott met with requests for psychiatric help in all the fields mentioned, and regrets had been expressed at many levels of society that mental health needs were not being fulfilled. It is stated that any programme to remedy matters must take into consideration (*a*) the remedy of overcrowding in public hospitals, (*b*) the improvement of medical standards in mental hospitals, (*c*) the provision of large numbers of suitably trained professional staff, (*d*) an increase in community services, including early treatment services, clinics, training centres and community education, and (*e*) a programme of applied and basic research. There is need for the provision of strong mental health divisions within the framework of State health departments, the directors of these divisions being allowed a large degree of autonomy and given sufficient staff to deal with their many diverse responsibilities. State mental health staffs have to be built up to develop a mental hospitals programme, a mental deficiency programme and programmes for the aging, for alcoholics and for forensic psychiatric problems. A big hospital construction programme has to be carried out, and present mental hospitals have to be remodelled and improved. This must obviously be a long-term programme and a continuous one, uninfluenced by anything but the most drastic social economic changes. Adequate maintenance staff should be part and parcel of the establishment of every mental hospital. There is need for mental hospitals to be given much more equipment and many more trained professional staff, so that adequate diagnosis, segregation, treatment and after-care can be carried out. Mental hospital departments need to develop big in-service training programmes. For this, government subsidies would seem to be necessary. Children and adult psychiatric clinics are required in greater numbers, in relation both to mental hospitals and to teaching and other general hospitals. The eventual aim is to have one full-time clinic for every 100,000 of population. Finally, there is the need to study continuously the pattern and extent of the mental health problem and to devise experimentally the best ways of dealing with it. Funds need to be specially earmarked for this and workers trained in research techniques. The problem of mental health is a major segment of the public health problem which cannot be solved without intensive effort and a considerable amount of vision. The history of psychiatry in Australia shows that periodical efforts have been made to catch up on building and so on, but that these have fizzled out locally, probably because of economic factors and the lack of a well-developed psychiatric voice in health affairs. This danger still persists. The view is expressed that a Federal mental health division would be desirable in Australia. It could act as a clearing house for the distribution of mental health knowledge, and could, by subsidies, encourage activity in the mental health field where it was most needed; it could also examine the overall statistical position for the guidance of State and Federal Governments. The mere provision of more beds without the raising of the standards of existing hospitals, and without improvement of the quality and numbers of professional staffs, will be perpetuating an historical error. The improvement of existing hospitals, the provision of new beds, the establishment of early treatment centres and out-patient clinics, the encouragement of professional training, and a programme of investigation must all be developed together, each being considered as important as the other in the final realization of the mental health programme. Only local conditions can determine the immediate precedence of any of these.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

THE MEDICAL BODY.

[From *The Sydney Morning Herald*, August 14, 1846.][1]

THE dissensions which have for some months past prevailed amongst the medical practitioners of this city and which have been so glaringly obtruded on the public eye, call for severe animadversion at the hands of the Press and for the adoption of some remedial measures on the part of the profession.

We have nothing to say on the matters in dispute: we cannot undertake to arbitrate between the contending parties: all we feel called upon to do is to censure the quarrelsome spirit which has been permitted to become so rampant amongst the doctors and even suffered to break loose upon the society which supports them. Their profession is public property; their squabbles are a public nuisance. Depending on their skill and character, as we all in a very great measure do, for the preservation of what is more precious to us than silver or gold, houses or lands, we cannot but be conscious that whatever tends to degrade their dignity as a class and to interfere with the diligent and conscientious discharge of their proper duties is a general grievance and calamity. In proportion as they cease to command our respect, they must fail to inspire our confidence: and confidence in the physician, as everybody knows, is half the patient's cure. The fierce bitter outrageous contentions which have of late been spreading so rapidly in our medical circle, threatening to convert it into a great bear garden and to set the whole of our "hundred and thirteen"[2] physicians by the ears have undoubtedly gone far towards depriving the profession both of the public respect and the public confidence. They have assuredly raised one very painful suspicion—a suspicion as to the bona fide character of medical consultations. A veil has been lifted up and the eye has been shocked to discover how many corrupt elements are allowed to mingle with those solemn counsels upon which suffering humanity hangs with such intense solicitude, and upon whose results the question of life or death so frequently depends. We have been taught the humiliating, the harrowing fact, that our confidential advisers, on matters of vital moment to ourselves and families, are not incapable of abusing the confidence we repose in them under the most critical circumstances in which human beings can be placed: that at those awful moments when we need the utmost resources of the "healing art" and appeal to our medical attendant for his guidance in the choice of further professional aid, he may respond to our appeal by hypocritical artifices shutting us out from men of eminence, because he personally dislikes them, and introducing men who can be of no manner of use simply because he is on civil terms with them. For the sake then both of the profession and of the public something should be done to put down this nuisance and to prevent its recurrence. There is wanted some sort of tribunal to which the profession as such may appeal and whose decisions shall be clothed with recognized authority. The other learned professions are furnished with such tribunals. The clergy, according to their respective forms of government, have their ecclesiastical superiors or their church courts. The lawyers have their Law Society and the Judges of the land. Why should not the "gentlemen of the faculty" also possess some analogous institution.

[1] From the original in the Mitchell Library, Sydney.

[2] The number of persons returned by the late Census as being of the "medical profession" within the district of Sydney.

Obituary.

RANALD DOUGLAS CAMPBELL.

ON January 23, 1955, there died at Inverness, Scotland, Dr. Ranald Douglas Campbell, who had practised in that city since the end of the first World War. He was known in Hobart where he practised for about ten years before the war and served with distinction with the Australian Imperial Force.

Campbell was born at Innellan, in Argyllshire, seventy-nine years ago. He studied medicine at Glasgow, graduating in 1898, and after holding several resident appointments went to Hobart. He was a member of the Tasmanian Branch of the British Medical Association and married a daughter of the late Dr. Gregory Sprott, who took a leading part in the activities of the Association. On the outbreak of war Campbell volunteered for service and sailed in the Australian Hospital Ship *Kanowna* with the Third Australian Casualty Clearing Station. With this unit he saw service at Gallipoli. The Casualty Clearing Station was sent to England in July, 1916, and by the end of September the unit was in France. Graham Butler in the second volume of his "Official History" records that the unit reported to the D.M.S. "Reserve Army" and that thereafter the experiences of the Casualty Clearing Station were closely involved with the fortunes of this "stormy petrel" of British armies and with the experiments of its adventurous medical director, Surgeon-General Skinner. The "Reserve Army" was under the command of General Gough, and in October, 1916, became the fifth army. As part of the general preparations for the Third Battle of Ypres the Third Casualty Clearing Station was transferred to Flanders for special duty. It was at this time that Campbell took over the command of the unit from Lieutenant-Colonel J. Corbin. Cameron was decorated with the D.S.O. and with the *Croix de guerre*.

Ranald Douglas Campbell is remembered by the older members of the profession in Hobart and by others. He gained a reputation in Inverness as a trusted and sound practitioner. It is fitting that his services to the nation in war and in peace should be recalled.

HARRY NAIRN BUTLER.

WE have received from Dr. W. E. L. H. Crowther the following appreciation of the late Dr. Harry Nairn Butler.

Harry Nairn Butler, who died at the Repatriation General Hospital, Hobart, on February 22, 1955, had been an outstanding figure both in his profession and in the community in which his life had been spent. It is only proper that it should have been so, as his family had been notable for their social, legal and medical activities since the arrival of Gamaliel Butler, solicitor, at Hobart Town on July 26, 1824. This is not the occasion for more than mentioning the long continuity of the legal firm he founded, our concern being with the medical practice initiated by his son, Henry Butler, who followed him to Van Diemen's Land some twenty-five years later.

The Honourable Henry Butler, F.R.C.S. (England), M.L.C., one-time Speaker of the House of Assembly, combined an active political career with a very large practice. He had been educated in London, and after taking the conjoint diplomas from Westminster Hospital in 1843, proceeded six years later to the Fellowship of the Royal College of Surgeons, England. His major interest, apart from professional work, had been politics; and for a number of years he was Chairman of the Board of Education and, as mentioned, Speaker of the House. When he died, full of years and still in active practice, his eldest son, Gamaliel Henry, who had in turn qualified from Westminster Hospital, continued in the practice. A second son, Gilbert Edward, followed the tradition, again at Westminster Hospital, taking the M.R.C.S. and L.R.C.P. in 1884, five years after his brother. He was to practise all his life in Tasmania, first at Oatlands and afterwards at Zeehan. He lived to see his son, Terence C. Butler, F.R.A.C.P., also qualify from his old hospital and join him in practice.

The Honourable Gamaliel Henry Butler, M.L.C., was not only a leading medical practitioner, but as well a prominent man in political life, being Chief Secretary during the period 1909 to 1914. His son, Harry Nairn, the subject of this notice, followed him in his practice.

Thus for over a century members of the family have continued the practice in Tasmania. During this long period they have exhibited high personal qualities and marked integrity. In return they have enjoyed the loyalty, respect and affection of succeeding generations of their patients. This short summary of their work and characters is essential to the better understanding of Harry Butler's career. He was the eldest son of a family of six, and was educated at Hobart and Brentwood Grammar School, near London. It had been intended that he should join the Royal Navy; and to do so he left at an early age for England, only to be unsuccessful at the entrance examinations. Matriculating from the Hutchins School, Butler entered Ormond College, graduating M.B., B.S. (Melbourne) in 1910. He married at once and, without taking any resident appointment, commenced practice in Hobart. The association with his father was not to be for long. Eleven days after the outbreak of the Great War Dr. "Gam" died of cerebral apoplexy, and a week or two later Harry, already a major in the Australian Army Medical Corps, went into camp with the Australian Imperial Force. Here he was posted as officer-in-charge of C Section of the Third Field Ambulance and went overseas in December, 1914, on the troopship *Geelong*. Service at Gallipoli followed, for a period as medical officer on the trawler *Clacton* ferrying casualties from Anzac Cove and Helles to the hospitals at Lemnos, and afterwards on the Peninsula with his division. A severe wound in the abdomen, sustained at the advanced dressing station during the Lone Pine attack in August, led to his evacuation to Egypt. With recovery came promotion to the rank of lieutenant-colonel and command of the Third Field Ambulance. With this unit he served in France through the Somme action and advance to the Hindenburg Line. In the spring of 1917, for reasons of health, he was returned to Australia, having been awarded the Distinguished Service Order, with two mentions in dispatches.

Back in Tasmania, Butler commenced an association with the Department of Repatriation that was to continue until 1952—first in the administration of its hospital, at that time a group of one-storey wooden buildings that had been hastily erected on the best portion of the old Barrack Reserve, and later as senior medical officer (there was no other full-time medical officer until after the second World War) in control of the medical administration of the department throughout the State.

It was obvious that the war had profoundly changed Butler's sense of values. The family practice that had once meant so much to him now seemed to have little attraction. Although permitted a measure of private practice in the early years of his appointment, he contented himself with the X-ray practice and with the care of certain of the old family patients (they would have no one else) without any question of a fee. What he chose as his life's work was in harmony with his character. To subordinates, especially ex-servicemen, "The Colonel" became a paternal figure. He was easy to approach, wise, direct and honest, and his decisions were accepted as just, consistent and proper. It is very probable that his departmental superiors did not find him so amenable. Autocratic in temperament, he was at times peremptory and impatient, being quick to appreciate the essential factors in any problem and intolerant of paper work and office procedure. With a logical mind and marked common sense, he would blandly, when the mood took him, offer solutions that were anathema to more orthodox minds. His was a most successful career; and when after thirty-five years Butler retired from his post, there was a universal sense among ex-servicemen that their best friend had gone.

He had, however, many other interests. The Tasmanian and Naval, Military and Air Force Clubs (the former a second home) both honoured him by their presidency. He was interested in racing also, as committeeman of the Tasmanian Racing Club for many years, and as owner of at least one horse, "The Marker", who won him a race or two. Butler served, too, as director to the Australian Mutual Provident and Perpetual Trustee Company, being chairman of the local committee of the former for seventeen years. A major pleasure was a cottage at the Carlton River, where each week-end, with congenial friends, he fished around Spectacle Island and Pitt Water. Although Butler had been a junior honorary medical officer of both the Hobart General and Queen Alexandra Hospitals before going on active service, he was actually not deeply interested in professional work. However, it was his pleasant custom occasionally to drop in, casually, to an important meeting. Always a loyal member of the British Medical Association, he played his greatest part on the occasion of the Australasian Medical Congress at Hobart in 1934, when with the writer he acted as joint honorary secretary. Its organization entailed months of work and planning, undertaken at the Repatria-

tion Hospital, in the early morning before our respective duties commenced. The greater share fell to him, and it was done apparently without effort. Those who were in Hobart during Congress week will remember him as a delightful leader and host, the embodiment of humour and good will.

We had been lifelong friends, our families living opposite each other in Macquarie Street—six children to each, with constant coming and going between the homes. The association continued at school, at the university and in professional life. In the Commonwealth Military Forces

Butler was my senior officer, both in the field ambulance and when he succeeded Colonel W. W. Giblin as Deputy Director of Medical Services of the Sixth Military District, now Tasmania Command. It was most pleasant to work under him, and the happiest memories remain of the long series of encampments at Ross that we shared between the wars.

Butler's service with the Medical Council of Tasmania covered thirty-five years, for most of which he was its honorary treasurer. Although the senior member at the death of Dr. W. W. Giblin, he declined nomination to the vacant presidency, to which he certainly would have been elected, and to which the writer was appointed. This was a typical and most unselfish action.

Although much might be written of his social and personal attributes, this may be said in conclusion: with all his geniality and sense of humour there remained a certain essential reserve, and he seemed to find his greatest interest in people and their actions, rather than in material things.

It would be true, I believe, to say of Harry Nairn Butler that, while he permitted few if any intimates, his friends were innumerable. We who remain will remember him as a great gentleman.

WILLIAM HELLIAR LONG.

DR. WILLIAM HELLIAR LONG, who died in the Repatriation General Hospital at Heidelberg, near Melbourne, on February 17 of this year, was born at Korumburra on June 22, 1890, the son of Robert Long, of Leongatha. His childhood was mostly spent in Gippsland, but in 1901 his parents moved to Melbourne, where he was educated at the Middle Park State School and the South Melbourne College. After passing the matriculation examination he was appointed a teacher at the Oakleigh State School, and later, having been successful in the Commonwealth Public Service entrance examination, he secured an appointment at the Meteorological Bureau in Adelaide.

After three years' service with the bureau he was selected as the meteorologist to accompany an Australian Antarctic exploration party, and was on the point of embarkation when he fell ill, to his great disappointment. It is probable that this illness not only prevented him from accompanying the expedition to Macquarie Island, but also, not long after, led to his rejection on medical grounds when he volunteered for active service abroad with the first Australian Imperial Force. He then decided to study medicine, and, having previously matriculated, he was able to enter the University of Melbourne as a non-resident student. His parents were not wealthy; so, like many others, he sought part-time employment in the early part of his course. For a time he was part-time librarian at the university library, and later was employed at the Infectious Diseases Hospital at Fairfield. At the end of his first year he won an exhibition in chemistry, and also a major scholarship to Queen's College, which he entered in 1916. He graduated M.B., B.S. in 1920 and was appointed a resident medical officer at the Kitchener Memorial Hospital, Geelong. Later he was for some months on the staff of the Children's Hospital, Brisbane. In 1922 he married Winifred Garden, of Melbourne, and began general practice at Ardlethan in New South Wales.

He remained at Ardlethan for about four years, but when on a holiday in Geelong he learned of an opening in that city, and accordingly he settled there and before long built up a large practice. In 1926 he was appointed an honorary out-patient medical officer to the Kitchener Memorial Hospital, which post he held until 1942, when he was appointed an honorary in-patient physician. He held this post until the end of 1945.

He was an active member of the Geelong and Colac subdivision of the Victorian Branch of the British Medical Association, and served on several subcommittees. He was elected Vice-President of the subdivision in 1935 and President in 1936, in 1939 and again in 1945.

On the outbreak of the second World War he offered his services, but was considered to be too old for general service

in the field. He was, however, accepted as regimental medical officer to the Forestry Unit which was being organized for service in the United Kingdom. When Australian troops were transferred from England to the Middle East, he accompanied them and was posted as medical officer to Australian Headquarters in Cairo; later he was attached to the Sixth Australian General Hospital in Jerusalem.

On his return to Australia in 1942 his services were terminated on medical grounds, and he returned to his practice in Geelong. On February 8, 1943, he was elected a member of the Geelong Legacy Club, on the motion of Legatees George Cole and John Turnbull. He proved a valuable accession to the ranks of the club, whose function it is to care for the children of deceased sailors, soldiers and airmen. He took his full share in the life and work of the club, particularly as a member of the medical panel, which has done a tremendous amount of good for Geelong by its general supervision of the health of the children under the care of the club.

He had for many years been a local medical officer of the Repatriation Department, and in 1946 he was appointed a full-time permanent medical officer of that department in Melbourne. He began duty on February 1 of that year as a clinical and administrative medical officer, and was looked on in the department as a capable and esteemed colleague, both by his brother medical officers and by the non-medical administrative officers alike.

He retired on medical grounds on September 15, 1953, and thereafter lived quietly at his home, devoting himself to the society of his family and friends until his final illness.

THE REVEREND DR. G. CALVERT BARBER, Professor of Theology at Queen's College in the University of Melbourne, writes: It was my privilege to know the late Dr. W. Hellier Long for the past twenty-nine years. For seven of those years, while I was resident in Geelong, he was not only a personal friend, but our family doctor as well. From the beginning I recognized in him one who held the highest ideals of the medical profession, and who never wavered in giving them expression. Indeed, it often seemed to me that he was over-generous with his care. He was one who inspired confidence in his ability, and who, by his kindly and sympathetic nature, called out the confidences of his patients. As a minister of religion in a wide area of Geelong, I came constantly across him as we were about our two tasks, and this only served to deepen my admiration and regard for him. He was one to whom the practice of medicine was a vocation—never a mere job, and certainly not one to be used as the means of making money.

In his passing the medical profession has lost a worthy exemplar, and those who came to know him, a firm and self-forgetting friend.

DR. GEORGE COLE writes: When one has known a man for half a lifetime, and has not only been his patient, but enjoyed his friendship, and has leaned on him heavily in times of stress, it is almost impossible to write of him dispassionately. To my family and to me, once we got to know him, Bill Long was ever the beloved physician, and I know that we were not alone in our affection for him.

He had a large practice in Geelong for many years, and to all his patients he brought unremitting care, heedless of his own convenience or comfort. He wore himself out in their service, for he was a comparatively young man when the strain of practice and of war service began to tell on him, and he was not old when illness compelled his retirement.

He never talked of his professional ideals, but his life showed that he was actuated by the same motives that Osler professed—"to do the day's work well; to act the Golden Rule, so far as within me lay, towards my professional brethren and towards the patients committed to my care; to cultivate such a measure of equanimity as would enable me to bear success with humility, the affection of my friends without pride, and to be ready when the day of sorrow and grief came to meet it with the courage befitting a man".

Many good doctors find it hard to adapt themselves to departmental life, general practitioners especially, but Bill Long was one of those who found himself able to bring to his official duties in the Repatriation Department not only the clinical acumen gained in his considerable medical and surgical experience, but also the kindliness, humanity and understanding of the family doctor.

It was hard to get him to take time off from his work, but sometimes one could tempt him to "go bush" and walk in the hills, and what a grand companion he was on those occasions! Being country-bred, he could point out much that escapes the townsman's eye, or ear. He loved a good horse. He was keen on cricket, and never missed any match of importance at the Melbourne Cricket Ground which he could possibly attend, and after he came to live in Melbourne he found in bowls the recreation and companionship which he would otherwise have missed.

He leaves behind him the memory of a well-spent life.

Correspondence.

PERFORATION OF THE SMALL BOWEL IN INTESTINAL OBSTRUCTION.

SIR: *Re* report of cases entitled "Perforation of the Small Bowel in Intestinal Obstruction" in your issue of April 30, 1955. Because these case reports may create a wrong impression as to the value of intubation suction as part of the treatment of intestinal obstruction, I feel that some frank comment is necessary.

It would have been much more appropriate if the title had been "Fatalities following the Mismanagement of the Conservative Treatment of Intestinal Obstruction". If Dr. Neil Johnson had reviewed local literature, and it would appear from his references that such was not the case, he would have found, in the issue of this journal of March 3, 1951, information that if applied to these cases would probably have deprived him of the clinical material on which his conclusions were based. As a result of considerable clinical study over some years of intubation suction as part of the treatment of intestinal obstruction, I have reached a number of definite conclusions which have been stated in the paper referred to, and which I have found no reason to change with lapse of time.

Thus, intestinal suction through an indwelling intestinal tube, such as the Miller-Abbott tube, is infinitely superior to gastric suction through any form of gastric tube, and should be used in all cases where prolonged suction becomes necessary.

For several reasons set out in the paper quoted, prolonged gastric suction is seldom, if ever, justified.

Secondly, although Dr. Johnson makes no comment as to whether suction was intermittent or continuous, there is no doubt that continuous suction by means of a suitably designed apparatus is infinitely superior to intermittent suction by a syringe. There is no need to elaborate on this; it has been proven time and time again. In my opinion, intermittent syringe suction through an indwelling tube should never be used in intestinal obstruction.

Thirdly, in my experience, if intestinal suction using a suitable intestinal tube and continuous suction by a proper apparatus does not succeed in satisfactorily decompressing the small bowel, then the reason is that a closed loop obstruction is present. One cannot rely entirely on clinical examination to determine this. It is necessary, as part of the supervision, to take skiagrams at regular intervals, the intervals depending on whether or not decompression is progressing satisfactorily.

In Case I reported by Dr. Johnson the primary error was that gastric suction was persisted with for nine days after the onset of the obstruction. The second error was that the significance of the increase in distension was not appreciated. The plain X-ray film showed that three coils of distended small bowel were present in the pelvis. Comparison of this film with one taken previously, or a short time later, would probably have shown that distension of a localized area of the small bowel was increasing, and this should have been interpreted as indicating a non-resolving closed loop obstruction, which should probably have been followed by a laparotomy.

Dr. Johnson states, "however, the patient's general condition remained satisfactory and in spite of the persisting distension conservative management was continued", and it was continued for a further seven days. If laparotomy had been performed on the fifteenth or sixteenth day, and it would appear that the clinical findings *plus* repeated skiagrams would have indicated this, then the outcome of the case would probably have been different. Persistence with conservative treatment because "the patient's general condition remained satisfactory" may prove dangerous. It may be most difficult to be certain that such is really the case.

In Case VI in the paper quoted, a temperature of 98° F. and a pulse rate of 72 were recorded ten hours before death from internal strangulation of a bowel loop, and at a time

when the patient's general condition was good. One hesitates to criticize such a case in retrospect without knowing all the facts, and there may be facts not disclosed which might have justified the prolongation of conservative treatment. However, from the information given it does not appear that such was justifiable.

The clinical notes in Case II are rather meagre. Although Dr. Johnson does not state therein that gastric suction was used, he does imply this toward the end of the discussion. In this case no X-ray picture was taken, notwithstanding that the abdominal distension was increasing. Again it would appear that the clinical information might have been enough to establish a pre-operative diagnosis of closed loop obstruction which probably would have been followed by laparotomy.

I feel most disturbed that so much reluctance is shown by otherwise competent surgeons in using intubation suction in a proper manner. I am of the considered opinion that it is one of the major surgical advances of recent years, but one would not think so when discussing the subject with quite a large number of surgeons of considerable reputation and experience. There is no doubt that in at least one Australian capital city the cause of intestinal intubation suction, and consequently the treatment of intestinal obstruction, has suffered from the circumstances of its early advocacy. There is no doubt that in the early days of its use it was used beyond its legitimate indications, with consequent disastrous results. It is a method of treatment which, unfortunately, makes considerable demands on the time and patience of the surgeon, the nursing staff and the radiologist; but those of my acquaintance who have persisted with it intelligently and with proper equipment feel, as I do, that it is a most valuable method of treatment which is unjustifiably neglected, and which, if used more extensively, would result in a material fall in the overall morbidity and mortality of intestinal obstruction.

I hope and trust that Dr. Johnson will read the paper published in this journal to which I have previously referred.

Yours, etc.,

T. and G. Building,
Geelong,
Victoria.
May 5, 1955.

CHARLES GALE.

Reference.

GALE, C. (1951), "Intubation, Enterostomy and Laparotomy: Their Place in the Treatment of Intestinal Obstruction", M. J. AUSTRALIA, 1: 317.

THE USE OF CHEMOTHERAPEUTIC DRUGS.

SIR: May I thank you for the information in your leading article of April 9, 1955, on "The Use of Chemotherapeutic Drugs". It is right that the dangers of these drugs be well known. I would like to emphasize, however, the value of the present trend of treatment in using antibiotics on "empirical" grounds. Those responsible for the recovery of a patient must give deep thought before omitting to give an antibiotic to a sick patient with a fever.

As a counter to your story of the patient with malaria getting two antibiotics before the diagnosis was made, might I describe the example of a child, aged ten years, with a fever for five days, who was deprived of treatment in the home because no signs were detected by the doctor, on careful examination. On the sixth day some crepitations were first heard, and the basal pneumonia cleared up quickly with penicillin, which would have been the case with common-sense "empirical" application five days earlier—perhaps the diagnosis would never have been made.

It is my belief that many illnesses are cured before they are diagnosed by means of the present-day practical method of treatment.

I certainly agree that, where possible, all care, accuracy in diagnosis and investigation should be attempted.

In your valuable editorial you mention the dangers of erythromycin, which is not available free to a patient through the National Health Service; neither is it available for a private patient in the home, through the chemist. Is it right that a valuable drug like this, which could be the best for a particular patient, should be denied him because of the theoretical objection that its use might endanger treatment of others in the future? Certainly not, is my answer to that question.

Considerable valuable advice has come from Phyllis M. Rountree and E. F. Thomson (*Lancet*, August 9, 1952) and L. P. Garrod ("The Use and Abuse of Antibiotics", *Brit. M. J.*, December 11, 1954, page 1413). Authoritative views are also found in "Principles and Practice of Antibiotic Therapy, 1954", edited by Henry Welch and published by Medical Encyclopædia, Inc., 1954, but more positive help is needed locally.

Progress in home treatment of acute infections can come when a larger number of bacteriologists, both medical graduates and science graduates, are interested and organized in the treatment of acute disease, both in hospital and private practice.

Some authority could organize field laboratories or peripatetic pathologists or technicians who can advise doctors on the probable nature of organisms causing the common infections in their area—with the likely drugs to be of value, or if no drugs are likely to help. The bacteriologists should share with the clinician the responsibility for not giving drugs.

Yours, etc.,

8 Collins Street,
Melbourne,
May 5, 1955.

STANLEY WILLIAMS, M.D., F.R.A.C.P.

THE FINAL DISPOSAL OF SPECIAL FUNDS.

SIR: From time to time relief funds are opened for subscription by the profession or a new society inaugurated, usually with admirable objectives. Frequently no provision is made for winding up or final disposal of any residual funds when the objectives cease to exist. This remainder money is then for practical purposes inaccessible, as an order of the Equity Court is required, involving prolonged and thorough inquiries, the cost of which disposes of the fund. The only alternative is to obtain the consent of all contributors and the legatees of any who are deceased, to some similar charitable purpose. It would be a wise provision if every such fund or society agreed at the onset that any residual funds be donated to the Medical Benevolent Fund or some continuing charity, as at the present time there are several such sums of money (amounting to some thousands of pounds) which are serving no useful purpose.

With particular reference to the current Flood Relief Fund, no such provision was mentioned, nor were the facts which made the fund of such imperative appeal made clear.

As I understand it, to participate in the general Flood Relief Fund it is necessary for the doctor concerned to sign a statement that he is destitute, which is probably untrue and, in any case, is regarded as *infra dignitatem* for any professional brother. Hence the necessity for a special fund.

Doubtless this circumstance will be kept in mind by medical men in future charitable public appeals when doctors may be among those for whom help is sought.

Yours, etc.,

British Medical Association House,
137 Macquarie Street,
Sydney.
May 11, 1955.

COLIN EDWARDS.

YOUNG DOCTORS AND SPECIALIZATION.

SIR: Dr. P. L. K. Addison's letter (M. J. AUSTRALIA, May 7, 1955) was delightful. In that short time science, genius and chance have spectacularly added antibiotics to medicine and surgery, blood transfusion to obstetrics, electroconvulsive therapy to psychiatry and plaster of Paris to orthopædics; but for those at all levels of technical skill and academic qualification who wish to exploit them, social and economic change has supplied ("on the free" and otherwise) an arcanum of injectible placebos. I suppose we are now divided into "G.P.'s", specialists and a third class, the paramedical practitioner, whose emblem would be: "A needle, hollow, rampant on an ampoule, or (all sinister and very sterile) couchant on a motto, 'Verbis non factis'."

Nevertheless, Dr. Addison, the celestial fire of devotion to duty still burns as brightly in most of us as ever it did.

Yours, etc.,

607 New South Head Road,
Rose Bay,
New South Wales.
May 19, 1955.

G. HARRIS.

British Medical Association News.

MEDICAL PRACTITIONERS' FLOOD RELIEF FUND.

THE following is a further list of contributors to the Medical Practitioners' Flood Relief Fund, opened by the New South Wales Branch of the British Medical Association to assist medical practitioners who suffered loss in the recent floods in New South Wales.

£250: The Medical Benevolent Association.

£50: Tonkin, J. R.

£31 10s.: Macarthur, R. J.

£26 5s.: Rich, D.; Dawson, A. L.

£20: Huntley, R., Fay, R. W., and Mayne, S.

£15 15s.: Rodda, F. N.

£10 10s.: Redmond, K. B., and Macintosh, L. J.; Ross, J., and Elphinstone, K. R.; Newton, W. N.; Fagan, K. J.; Noad, K. B.; Ham, H. J., Munro, F. V., and Duval, F.; Cahill, P.; Gilchrist, J. J.; Segal, R., and Segal, I.; Leighton, E. I., and Bruce, D. W.; Moore, Brooke, Cameron, R., and Van Gelderen, P. W.; Paton, C. N.; Thomas, A. C.; Dawes, S. R.; Halloran, H. (South Australia); Edwards, J. D. H.; Riley, Bernard M. B.; Anonymous; Cameron, W. W.; Sonnabend, S. I.

£10: Williams, J. L., Gray, F. J., and Rose, H. N.; Lopes, A. G.; Howe, R. E.

£7 10s.: Uebel, R. C.

£5 5s.: Lynch, R. B.; Day, E. M. A.; Vautin, W. R.; McCulloch, J. F.; Herlihy, J. J.; Joseph, M.; Stephenson, J. H.; Pollack, A.; Ward, J. T.; Curtis, G.; Gillespie, R. E. R.; O'Donohue, R. M.; Hamilton, A. R.; Waugh, P. C. P.; Bonnette, S. A.; Holmes à Court, A. W.; Johnston, W. W. S. (Victoria); Holt, I. W., and Holt, Dorrie A.; Turk, H.; Ross, D. M., and Gibson, C. J.; Lawes, C. H. W.; Blaxland, G. F., Blaxland, G. M., and Leventhal, W. A.; Vear, C. S.; Wightman, D. B.; Jaede, C. H.; Hallinan, G. M.; Elb, P.; Hegarty, V. H.; Spark, E. W.; Jackson, R. J.; Mackay, N. J.; James, J. A.; Commins, L. A.; McKee, J.; Shepherd, W. G., and Watson, J. L.; Vickery, D. G. R.; Fraser, W. H. M.; Bonnette, R. H.; Day, R. S.; Scott-Young, Margery; Paton, J. T.; Leaver, J. F.; Firkin, F. L.; Piper, C. T. (South Australia); Rumore, A.; Ainslie, J. P. (Western Australia); Furber, R. I.; Stephens, F. R. N., and Stephens, Norma C.; Conacher, C. J. R.; Lackey, S.; Ziegler, E.; Loveridge, G. B.; Harwood, H. B.; Ellis, O. J.; Marshall, S. V.

£5: Marel, J. O.; Hansman, F. S.; Howe, G. L.; Maynard, S. C.; Huxtable, C. R. R.; Chambers, G. A.; Edwards, C. M.; Hudson, C. P.; Lewis, Nancy (Victoria); Fitzgerald, G.; Brown, D. A.; Sterling-Levis, J. M.

£4 4s.: Taylor, L., and Taylor, R. G.; Holmes, R. A. G., and Graham, D. L.

£3 3s.: Hughes, A. S.; Erby, R. J. G.; Thomas, H.; McKellar, C.; Elliot-Smith, M.; Green, R.; Butler, J. F.; Cohen, J.; De Monchaux, C. F.; Rhydderch, A. I.; Jeffrey, B. G. E.; Anonymous; Dawson, W. S.; Traill, J. E.; Douglas, T. S.; Wilson, J. B.; Maddison, D. C.; Curtin, B. A.; Jeremy, R.; Morris, J. R., and Morris, G. W.; Brodie, G. M.; Steele, E. McA.; Wilson, F., Hales; Lennon, L. R.

£3: Davidson, G. M.

£2 10s.: Pettinger, D. F.

£2 2s.: Smith, G. S.; Green, J. C.; Tunley, J. L.; Tebbutt, A. H.; Ronai, T.; Blaxland, P. J.; Godden, Ruth; O'Reilly, M.; Hallett, P.; Roseman, D. H.; Bullock, J. H.; Boyd, B. A. M.; Phillips, L. H. A.; Grun, E.; Watt, J. L.; McKell, J.; Clouston, T. M.; Hertzberg, R.; Wiley, T. W.; Soper, H. L.; Himmelhoch, A.; Chapple, I. L. (Queensland); Anderson, H. W. (Queensland); Goldenberg, M.; Breyer, B.; Drescher, Sheila M.; Rankin, R. L. (Queensland); Orton, P. J.; Mearps, S. D.; Bouché, B. J. (Queensland).

£1 10s.: Craig, Ellen M. (Victoria); Johnson, F. L.

£1 1s.: Waterhouse, A. S.; Parker, A. H.; Brown, Lyle; Henderson, Annis M.; Reddel, A. E. M.; Chalmers, Clair D.

10s.: Anonymous.

Previously acknowledged: £2692 17s. 6d.

Total: £3871 3s. 6d.

VICTORIAN BRANCH NEWS.

Section of Preventive Medicine.

THE next meeting of the Section of Preventive Medicine of the Victorian Branch of the British Medical Association will be held in the Medical Society Hall, 426 Albert Street, East Melbourne, at 4.30 p.m. on Thursday, June 9, 1955. Dr. P. L. Colville, Poliomyelitis Medical Officer of the Department of Health, who has recently returned from a visit to countries in Europe and to the United States of America on a National Health and Medical Research Council Fellowship, will give a talk on "Some Aspects of Poliomyelitis Overseas". All members of the Branch are invited to attend.

SPECIAL GROUP ON AVIATION MEDICINE.

THE Special Group on Aviation Medicine will hold a scientific meeting in the Lecture Hall, Princess Margaret Hospital, Perth, on Thursday, June 30, 1955, at 8 p.m. The programme will consist of the presentation of films and a short paper on "Some Medical Observations on Passenger Reaction to Air Travel". All members of the British Medical Association are invited to attend. The treasurer of the Special Group on Aviation Medicine is Dr. F. S. Parle, 24 Rose Street, Box Hill, Victoria.

The Royal Australasian College of Physicians.

ADMISSIONS TO MEMBERSHIP.

THE following, having satisfied the Board of Censors in Australia, were admitted to membership of The Royal Australasian College of Physicians by the President in May, 1955: Dr. D. T. Church, Dr. B. D. Cotton, Dr. A. W. T. Edwards, Dr. D. A. Ferguson, Dr. R. A. B. Holland, Dr. R. G. Lewis, Dr. D. C. Maddison, Dr. R. S. Packard, Dr. R. D. Spooner and Dr. Claire Weekes, of New South Wales; Dr. Peter Ebeling, Dr. K. F. Fairley, Dr. W. S. C. Hare, Dr. K. H. McLean, Dr. B. W. Neal and Dr. J. S. Penington, of Victoria; Dr. T. M. Ferrier, of Queensland.

The following, having satisfied the Board of Censors in New Zealand, were admitted *in absentia* to membership of The Royal Australasian College of Physicians by the President in May, 1955: Dr. W. M. W. Brookfield, Dr. R. H. Culpan, Dr. P. W. Dykes, Dr. G. F. Hall, Dr. R. W. Hornabrook, Dr. J. D. McCreanor, Dr. J. R. Presland, Dr. D. H. H. Pullon, Dr. F. T. Shannon, Dr. C. M. Stubbs, Dr. J. M. Tweed, Dr. M. H. Watson and Dr. R. D. Wigley.

EXAMINATION FOR MEMBERSHIP.

AN examination for membership of The Royal Australasian College of Physicians will take place in September and October, 1955. The written examination will be held on Saturday, September 3, in capital cities of the Commonwealth where candidates are offering. The clinical examination will take place in Melbourne from approximately Monday, October 10, to Thursday, October 13, 1955.

Only those candidates whose answers in the written examination have attained a satisfactory standard will be asked by the Censor-in-Chief to proceed to the clinical examination.

Applications to appear before the Board of Censors should be made in the prescribed form and must be in the hands of the Honorary Secretary of the College not later than Friday, August 5, 1955. Application forms are obtainable from the Honorary Secretary of the College at 145 Macquarie Street, Sydney.

Royal Australasian College of Surgeons.

FINAL FELLOWSHIP EXAMINATION.

THE next meeting of the Court of Examiners for the Final Examination for Fellowship of the Royal Australasian College of Surgeons will be held at the College in Melbourne, beginning on Friday, October 21, 1955.

Candidates who desire to present themselves at this examination should apply, on the prescribed form, to the Censor-in-Chief for permission to do so before September 8, 1955. The appropriate forms are available from the Secretary, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1.

Candidates who have already been approved by the Censor-in-Chief, but who have not yet presented for the examination, may present at this examination, provided that they notify the Secretary of their intention to do so by September 8, 1955.

The examination fee is £21 plus exchange on cheques drawn on banks outside Melbourne, and must be paid to the Secretary by September 8, 1955.

The examination will be conducted in general surgery and in the special branches of ophthalmology, laryngo-otology, gynæcology and operative obstetrics, orthopædics, urology, neurosurgery and thoracic surgery.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following additional qualifications have been registered in accordance with the *Medical Practitioners Act*, 1938-1955, of New South Wales: Lance, James Waldo (M.B., B.S., Sydney, 1950), M.R.C.P. (London), 1955; Nuffield, Edward Joseph Alexander (M.B., B.S., Sydney, 1947), D.P.M. (Sydney), 1954; Prior, Herbert James (M.B., B.S., 1939), D.P.M. (Sydney), 1949; Waterhouse, Arthur Stanley (M.B., 1924, Ch.M., 1927, Sydney), M.C.R.A.

Removal from Register.

It is hereby advised that the name of the undermentioned has been removed from the Register of Medical Practitioners for New South Wales by order of the Disciplinary Tribunal: Gray, Ronald Wallace Menzies, 75 Woniora Road, Hurstville, M.B., B.S., Sydney, 1944.

QUEENSLAND.

THE following have been registered, pursuant to the provisions of *The Medical Acts*, 1939-1948, of Queensland, as duly qualified medical practitioners: Hewitt, Ian Alan, M.B., B.S., 1951 (Univ. Melbourne); Duncan, Neil Alexander, M.R.C.S. (England), 1944, L.R.C.P. (London), 1944, D.Obst., R.C.O.G. (London), 1950; Burrows, William Gerald, L.M.S., Nova Scotia Provincial Medical Board, 1953.

The following additional qualifications have been registered: Georgeson, Walter Selwyn, F.R.C.S. (England), 1951; Oakeley, William Graham, Ch.M., 1919 (Univ. Sydney), F.R.C.S. (Edinburgh), 1919.

Notice.

A ROYAL AUSTRALIAN AIR FORCE DINNER.

A ROYAL AUSTRALIAN AIR FORCE medical officers' service dinner will be held on Tuesday, August 23, 1955, at the Royal Australian Air Force Mess, Richmond, New South Wales. Dress will be blue uniform or "black tie". Those desirous of attending are asked to communicate with Dr. J. Witton Flynn, 183 Macquarie Street, Sydney. Details of transport *et cetera* will be published at a later date.

INTERNATIONAL SOCIETY FOR HUMAN AND ANIMAL MYCOLOGY.

THE International Society for Human and Animal Mycology was founded on July 6, 1954, in Paris, by a group of scientists of ten different nations, assembled on the occasion of the Eighth International Congress of Botany. The committee of the society is constituted as follows: *President, P. Redaelli (Milan); Vice-Presidents, C. W.* Emmons (Bethesda), G. T. Ainsworth (Exeter), P. Negroni (Buenos Aires), G. Segrétain (Paris); General Secretary, *R. Vanbreuseghem (Antwerp).*

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MAY 14, 1955.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	3(2)	3(2)	2	..	..	..	..	..	8
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	9(1)	..	..	..	..	..	9
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	1	..	..	..	..	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	2	..	..	..	..	..	..	..	2
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	2(2)	12(11)	..	..	1	..	..	..	15
Diphtheria	5(2)	1(1)	5(5)	..	34(32)	..	..	..	45
Dysentery (Bacillary)	..	5(5)	1	..	2(1)	..	..	..	8
Encephalitis	1	..	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	1(1)	..	..	..	..	..	..	1
Infective Hepatitis	50(13)	72(30)	..	5(3)	4(1)	..	..	..	131
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	3	..	..	..	3
Leptospirosis	..	..	6(1)	..	..	..	..	..	6
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	5(1)	3(2)	2	1	..	..	..	..	11
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	5(2)	6(3)	8(3)	5(4)	..	..	..	..	24
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	10(8)	1	..	2(2)	..	..	..	13
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	18(12)	18(15)	5(2)	17(15)	1(1)	..	..	..	59
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	10	..	..	..	10
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	58(36)	14(10)	13(3)	5(2)	9(8)	1	1	..	101
Typhoid Fever	..	1(1)	..	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	1	..	..	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

The objects of the society are as follows: to bring together qualified persons interested in the study of fungi living on humans and animals; to encourage the formation of regional groups of these persons; to organize meetings of the members on the occasion of international congresses; to publish as soon as possible a bulletin devoted to human and animal mycology.

All those who wish to become members of the International Society for Human and Animal Mycology are invited to send their request for admission to the General Secretary, Professor Dr. R. Vanbreuseghem, giving details of their qualifications and a list of their scientific publications. The annual subscription has been fixed at three dollars, account number 133.700 of the General Secretary of the society, at the *Banque d'Anvers*, Antwerp, Belgium.

SIXTH INTERNATIONAL CONGRESS ON HYDATID DISEASE.

THE General Secretary of the Sixth International Congress on Hydatid Disease announces that the Congress will be held at Athens from September 14 to 18, 1956, under the presidency of Dr. M. Maccas. The following aspects of the subject will be discussed: medico-surgical, biological and epidemiological aspects; prophylaxis; comparative studies on anthelmintics; hydatid disease from a social and economic point of view. Further information concerning the Congress, together with details of archæological expeditions arranged in connexion with it, will be available later. Those interested in taking part in the Congress are asked to communicate with the General Secretary, and if they wish to present papers, the titles should be in his hands by December, 1955. The fee for membership is $10.00, and for those accompanying members $5.00. The General Secretary of the Congress is Assistant Professor B. Kourias, Greek Red Cross Society, 1 Mackenzie King Street, Athens.

Medical Practice.

PENSIONER MEDICAL SERVICE.

REPRIMAND OF MEDICAL PRACTITIONER.

THE following notice was published in the *Commonwealth of Australia Gazette*, Number 22, of May 19, 1955.

I, EARLE PAGE, the Minister of State for Health, hereby give notice, in pursuance of sub-section (1) of section 36 of the *National Health Act*, 1953, that I have this day reprimanded Aubrey George Bennett, of 76 Charters Towers-road, Townsville, medical practitioner, following investigation and report by the Medical Services Committee of Inquiry for the State of Queensland established under section 110 of the Act concerning the conduct of the aforesaid medical practitioner in relation to his provision of medical services for pensioners and their dependants under Part IV. of the Act or under an arrangement made by the Director-General of Health under section 7 of the *National Health Service Act*, 1948-1949, and the National Health (Medical Services to Pensioners) Regulations.

Dated this twenty-seventh day of April, 1955.

EARLE PAGE,
Minister of State for Health.

Nominations and Elections.

THE undermentioned have been elected as members of the New South Wales Branch of the British Medical Association: Banfield, John Francis, M.B., B.S., 1948 (Univ. Sydney); Goldstein, Bronislawa, registered in accordance with the provisions of Section 17 (1) (c) of the *Medical Practitioners Act*, 1938-1953; Manners, David, M.B., B.S., 1955 (Univ. Sydney); Morgan, John Joseph, M.B., B.S., 1955 (Univ. Sydney); McGarn, Francis Ralph, M.B., B.S., 1953 (Univ. Sydney).

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association: Daly, Lyndsay James, M.B., B.S., 1954 (Univ. Adelaide) (qualified 1953); Thomson, John Evelyn, qualified 1954; Sumner, Graham Edwin, qualified 1954; Lyall, Allen Raymond, M.B., B.S., 1954 (Univ. Adelaide) (qualified 1953).

Deaths.

THE following deaths have been announced:

NISH.—James Alexander David Nish, on April 30, 1955, at Melbourne.

DAVIS.—Norman Ernest Davis, on May 20, 1955, at Sydney.

STILES.—Bernard Stiles, on May 22, 1955, at Sydney.

MCCAFFERY.—Ernest Moore McCaffery, on May 23, 1955, at Sydney.

Medical Appointments.

Dr. Elva Grace Haynes has been appointed to the School Medical Service in the Department of Public Health, New South Wales.

Dr. C. M. Deland has been appointed honorary clinical assistant to the medical section of the Royal Adelaide Hospital.

Diary for the Month.

JUNE 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.
JUNE 10.—Tasmanian Branch, B.M.A.: Branch Council.
JUNE 10.—Queensland Branch, B.M.A.: Council Meeting.
JUNE 13.—Victorian Branch, B.M.A.: Finance Subcommittee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all contract practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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